

SEQUENCE LISTING

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 Doi, Masayuki
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<120> Recombinant Laminin 10

<130> 99-274-F

<140>
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<150> 60/257,449
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<160> 36

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Gly Pro Arg Gly Pro Ala Pro Leu Leu Leu Val Gly Leu Ala Leu Leu	
15 20 25 30	

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Gly Ala Ala Arg Ala Arg Glu Glu Ala Gly Gly Phe Ser Leu His	
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Pro Pro Tyr Phe Asn Leu Ala Glu Gly Ala Arg Ile Ala Ala Ser Ala	
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acc tgc gga gag gag gcc ccg gcg cgc ggc tcc ccg cgc ccc acc gag	301
Thr Cys Gly Glu Ala Pro Ala Arg Gly Ser Pro Arg Pro Thr Glu	
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Asp Leu Tyr Cys Lys Leu Val Gly Pro Val Ala Gly Gly Asp Pro	

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445			
tgg tgg cag agt cca ccg ctg tcc cgc ggc ctg gag tac aac gag gtc Trp Trp Gln Ser Pro Pro Leu Ser Arg Gly Leu Glu Tyr Asn Glu Val 130	135	140	
493			
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637			
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925			
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973			
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1021			
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1069			

1000-1200T

cgc tgc tgc ccc ggc ttc aat cag cag ccg tgg aag cct gcg act gcc Arg Cys Cys Pro Gly Phe Asn Gln Gln Pro Trp Lys Pro Ala Thr Ala 335 340 345 350	1117
aac agt gcc aac gag tgc cag tcc tgt aac tgc tac ggc cat gcc acc Asn Ser Ala Asn Glu Cys Gln Ser Cys Asn Cys Tyr Gly His Ala Thr 355 360 365	1165
gac tgt tac tac gac cct gag gtg gac ccg cgc cgc gcc agc cag agc Asp Cys Tyr Tyr Asp Pro Glu Val Asp Arg Arg Ala Ser Gln Ser 370 375 380	1213
ctg gat ggc acc tat cag ggt ggg ggt gtc tgt atc gac tgc cag cac Leu Asp Gly Thr Tyr Gln Gly Gly Val Cys Ile Asp Cys Gln His 385 390 395	1261
cac acc gcc ggc gtc aac tgt gag ccg tgc ctg ccc ggc ttc tac cgc His Thr Ala Gly Val Asn Cys Glu Arg Cys Leu Pro Gly Phe Tyr Arg 400 405 410	1309
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PROTEIN SEQUENCE

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cct gca gga acc ttg ccc gag ggc tgc gat gag ggc ggc cgc tgc cta Pro Ala Gly Thr Leu Pro Glu Gly Cys Asp Glu Ala Gly Arg Cys Leu 595 600 605	1885
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tac cat ggt ttc ccc aac tgc caa gca tgc acc tgc gac cct cgg gga Tyr His Gly Phe Pro Asn Cys Gln Ala Cys Thr Cys Asp Pro Arg Gly 625 630 635	1981
gcc ctg gac cag ctc tgt ggg gcg gga ggt ttg tgc cgc tgc cgc ccc Ala Leu Asp Gln Leu Cys Gly Ala Gly Gly Leu Cys Arg Cys Arg Pro 640 645 650	2029
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cct gcc ctt cct gag gca cag gtt ccc tgt atg tgc cgg gct cac gtg Pro Ala Leu Pro Glu Ala Gln Val Pro Cys Met Cys Arg Ala His Val 735 740 745 750	2317
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Cys Asp Ile Gly Gly Ala Leu Gly Gln Ser Cys Glu Pro Arg Thr Gly		
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Val Cys Arg Cys Arg Pro Asn Thr Gln Gly Pro Thr Cys Ser Glu Pro		
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Ala Arg Asp His Tyr Leu Pro Asp Leu His His Leu Arg Leu Glu Leu		
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Glu Glu Ala Ala Thr Pro Glu Gly His Ala Val Arg Phe Gly Phe Asn		
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Pro Leu Glu Phe Glu Asn Phe Ser Trp Arg Gly Tyr Ala Gln Met Ala		
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cct gtc cag ccc agg atc gtg gcc agg ctg aac ctg acc tcc ccc gac		2845
Pro Val Gln Pro Arg Ile Val Ala Arg Leu Asn Leu Thr Ser Pro Asp		
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ctt ttc tgg ctc gtc ttc cga tac gtc aac cgg ggg gcc atg agt gtg		2893
Leu Phe Trp Leu Val Phe Arg Tyr Val Asn Arg Gly Ala Met Ser Val		
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Ser Gly Arg Val Ser Val Arg Glu Glu Gly Arg Ser Ala Ala Cys Ala		
945	950	955
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Asn Cys Thr Ala Gln Ser Gln Pro Val Ala Phe Pro Pro Ser Thr Glu		
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cct gcc ttc atc acc gtg ccc cag agg ggc ttc gga gag ccc ttt gtg		3037
Pro Ala Phe Ile Thr Val Pro Gln Arg Gly Phe Gly Glu Pro Phe Val		
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Leu Asn Pro Gly Thr Trp Ala Leu Arg Val Glu Ala Glu Gly Val Leu		
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Leu Asp Tyr Val Val Leu Leu Pro Ser Ala Tyr Tyr Glu Ala Ala Leu		
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Leu Gln Leu Arg Val Thr Glu Ala Cys Thr Tyr Arg Pro Ser Ala Gln		
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Gln Ser Gly Asp Asn Cys Leu Leu Tyr Thr His Leu Pro Leu Asp Gly		
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ttc ccc tcg gcc gcc ggg ctg gag gcc ctg tgt cgc cag gac aac agc		3277
Phe Pro Ser Ala Ala Gly Leu Glu Ala Leu Cys Arg Gln Asp Asn Ser		

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gtg cca cag cca ggc cgc tat gcc cta gtg gtg gag tac gcc aat gag Val Pro Gln Pro Gly Arg Tyr Ala Leu Val Val Glu Tyr Ala Asn Glu 1105	1110		1115	3421
gat gcc cgc cag gag gtg ggc gtg gct gtg cac acc cca cag cgg gcc Asp Ala Arg Gln Glu Val Gly Val Ala Val His Thr Pro Gln Arg Ala 1120	1125	1130		3469
ccc cag cag ggg ctg ctc tcc ctg cac ccc tgc ctg tac agc acc ctg Pro Gln Gln Gly Leu Leu Ser Leu His Pro Cys Leu Tyr Ser Thr Leu 1135	1140	1145	1150	3517
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cgc acc atc ccg ccc gac tgc ctg ctg tgc cag ccc cag acc ttt ggc Arg Thr Ile Pro Pro Asp Cys Leu Leu Cys Gln Pro Gln Thr Phe Gly 1505 1510 1515	4621
tgc cac ccc ctg gtc ggc tgt gag gag tgt aac tgc tca ggg ccc ggc Cys His Pro Leu Val Gly Cys Glu Glu Cys Asn Cys Ser Gly Pro Gly 1520 1525 1530	4669
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cgt ggg cag ctg cag ctg gtg gag ggg aac ttc cgg cat acg gag act Arg Gly Gln Leu Gln Leu Val Glu Gly Asn Phe Arg His Thr Glu Thr 1760	1765	1770	5389
cgc aac act gtg tcc cgc gag gag ctc atg atg gtg ctg gcc agc ctg Arg Asn Thr Val Ser Arg Glu Glu Leu Met Met Val Leu Ala Ser Leu 1775	1780	1785	5437
gag cag ctg cag atc cgt gcc ctc ttc tca cag atc tcc tcg gct gtc 1790			5485

40037162 422404

Glu Gln Leu Gln Ile Arg Ala Leu Phe Ser Gln Ile Ser Ser Ala Val 1795 1800 1805		
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gcc ctg gcc agc aat gtg gag ctg tgc ctg tgc ccc gcc agc tac cgg Ala Leu Ala Ser Asn Val Glu Leu Cys Leu Cys Pro Ala Ser Tyr Arg 1825 1830 1835	5581	
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gac tgc gac ccc ctg acg ggc gcc tgc cgt ggc tgc ctg cgc cac acc Asp Cys Asp Pro Leu Thr Gly Ala Cys Arg Gly Cys Leu Arg His Thr 1985 1990 1995	6061	
act ggg ccc cgc tgc gag atc tgt gcc ccc ggc ttc tac ggc aac gcc Thr Gly Pro Arg Cys Glu Ile Cys Ala Pro Gly Phe Tyr Gly Asn Ala 2000 2005 2010	6109	
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gag gcc tgc gac ccc cac agc ggg cac tgc ctg tgc aag gcg ggc gtg Glu Ala Cys Asp Pro His Ser Gly His Cys Leu Cys Lys Ala Gly Val	6205	

the first time our party all went north in the same boat under the command of

	2035	2040	2045	
act ggg cgg cgc tgt gac cgc tgc cag gag gga cat ttt ggt ttc aat				6253
Thr Gly Arg Arg Cys Asp Arg Cys Gln Glu Gly His Phe Gly Phe Asn				
2050	2055	2060		
ggc tgc ggg ggc tgc cgc ccg tgt gct tgt gga ccg gcc ggc gag ggc				6301
Gly Cys Gly Gly Cys Arg Pro Cys Ala Cys Gly Pro Ala Ala Glu Gly				
2065	2070	2075		
tcc gag tgc cac ccc cag agc gga cag tgc cac tgc cga cca ggg acc				6349
Ser Glu Cys His Pro Gln Ser Gly Gln Cys His Cys Arg Pro Gly Thr				
2080	2085	2090		
atg gga ccc cag tgc cgc gag tgt gcc cct ggc tac tgg ggg ctc cct				6397
Met Gly Pro Gln Cys Arg Glu Cys Ala Pro Gly Tyr Trp Gly Leu Pro				
2095	2100	2105	2110	
gag cag ggc tgc agg cgc tgc cag tgc cct ggg ggc cgc tgt gac cct				6445
Glu Gln Gly Cys Arg Arg Cys Gln Cys Pro Gly Gly Arg Cys Asp Pro				
2115	2120	2125		
cac acg ggc cgc tgc aac tgc ccc ccg ggg ctc agc ggg gag cgc tgc				6493
His Thr Gly Arg Cys Asn Cys Pro Pro Gly Leu Ser Gly Glu Arg Cys				
2130	2135	2140		
gac acc tgc agc cag cag cat cag gtg cct gtt cca ggc ggg cct gtg				6541
Asp Thr Cys Ser Gln Gln His Gln Val Pro Val Pro Gly Gly Pro Val				
2145	2150	2155		
ggc cac agc atc cac tgt gaa gtg tgt gac cac tgt gtg gtc ctg ctc				6589
Gly His Ser Ile His Cys Glu Val Cys Asp His Cys Val Val Leu Leu				
2160	2165	2170		
ctg gat gac ctg gaa cgg gcc ggc ctc ctc ccc gcc att cac gag				6637
Leu Asp Asp Leu Glu Arg Ala Gly Ala Leu Leu Pro Ala Ile His Glu				
2175	2180	2185	2190	
caa ctg cgt ggc atc aat gcc agc tcc atg gcc tgg gcc cgt ctg cac				6685
Gln Leu Arg Gly Ile Asn Ala Ser Ser Met Ala Trp Ala Arg Leu His				
2195	2200	2205		
agg ctg aac gcc tcc atc gct gac ctg cag agc cag ctc cgg agc ccc				6733
Arg Leu Asn Ala Ser Ile Ala Asp Leu Gln Ser Gln Leu Arg Ser Pro				
2210	2215	2220		
ctg ggc ccc cgc cat gag acg gca cag cag ctg gag gtg ctg gag cag				6781
Leu Gly Pro Arg His Glu Thr Ala Gln Gln Leu Glu Val Leu Glu Gln				
2225	2230	2235		
cag agc aca agc ctc ggg cag gac gca cgg cgg cta ggc ggc cag gcc				6829
Gln Ser Thr Ser Leu Gly Gln Asp Ala Arg Arg Leu Gly Gly Gln Ala				
2240	2245	2250		
gtg ggg acc cga gac cag gcg agc caa ttg ctg gcc ggc acc gag gcc				6877
Val Gly Thr Arg Asp Gln Ala Ser Gln Leu Leu Ala Gly Thr Glu Ala				
2255	2260	2265	2270	
aca ctg ggc cat gcg aag acg ctg ttg gcg gcc atc cgg gct gtg gac				6925
Thr Leu Gly His Ala Lys Thr Leu Leu Ala Ala Ile Arg Ala Val Asp				
2275	2280	2285		

cgc acc ctg agc gag ctc atg tcc cag acg ggc cac ctg ggg ctg gcc Arg Thr Leu Ser Glu Leu Met Ser Gln Thr Gly His Leu Gly Leu Ala 2290 2295 2300	6973
aat gcc tcg gct cca tca ggt gag cag ctg ctc cgg aca ctg gcc gag Asn Ala Ser Ala Pro Ser Gly Glu Gln Leu Leu Arg Thr Leu Ala Glu 2305 2310 2315	7021
gtg gag cgg ctg ctc tgg gag atg cgg gcc cgg gac ctg ggg gcc ccg Val Glu Arg Leu Leu Trp Glu Met Arg Ala Arg Asp Leu Gly Ala Pro 2320 2325 2330	7069
cag gca gca gct gag gct ttg gct gca gca cag aga ttg ctg gcc Gln Ala Ala Ala Glu Ala Leu Ala Ala Gln Arg Leu Leu Ala 2335 2340 2345 2350	7117
cgg gtg cag gag cag ctg agc agc ctc tgg gag gag aac cag gca ctg Arg Val Gln Glu Gln Leu Ser Ser Leu Trp Glu Glu Asn Gln Ala Leu 2355 2360 2365	7165
gcc aca caa acc cgc gac cgg ctg gcc cag cac gag gcc ggc ctc atg Ala Thr Gln Thr Arg Asp Arg Leu Ala Gln His Glu Ala Gly Leu Met 2370 2375 2380	7213
gac ctg cga gag gct ttg aac cgg gca gtg gac gcc aca cgg gag gcc Asp Leu Arg Glu Ala Leu Asn Arg Ala Val Asp Ala Thr Arg Glu Ala 2385 2390 2395	7261
cag gag ctc aac agc cgc aac cag gag cgc ctg gag gaa gcc ctg caa Gln Glu Leu Asn Ser Arg Asn Gln Glu Arg Leu Glu Ala Leu Gln 2400 2405 2410	7309
agg aag cag gag ctg tcc cgg gac aat gcc acc ctg cag gcc act ctg Arg Lys Gln Glu Leu Ser Arg Asp Asn Ala Thr Leu Gln Ala Thr Leu 2415 2420 2425 2430	7357
cat gcg gct agg gac acc ctg gcc agc gtc ttc aga ttg ctg cac agc His Ala Ala Arg Asp Thr Leu Ala Ser Val Phe Arg Leu Leu His Ser 2435 2440 2445	7405
ctg gac cag gct aag gag gag ctg gag cgc ctc gcc gcc agc ctg gac Leu Asp Gln Ala Lys Glu Leu Glu Arg Leu Ala Ala Ser Leu Asp 2450 2455 2460	7453
ggg gct cgg acc cca ctg cag agg atg cag acc ttc tcc ccg gcg Gly Ala Arg Thr Pro Leu Leu Gln Arg Met Gln Thr Phe Ser Pro Ala 2465 2470 2475	7501
ggc agc aag ctg cgt cta gtg gag gcc gcc gag gcc cac gca cag cag Gly Ser Lys Leu Arg Leu Val Glu Ala Ala Glu Ala His Ala Gln Gln 2480 2485 2490	7549
ctg ggc cag ctg gca ctc aat ctg tcc agc atc atc ctg gac gtc aac Leu Gly Gln Leu Ala Leu Asn Leu Ser Ser Ile Ile Leu Asp Val Asn 2495 2500 2505 2510	7597
cag gac cgc ctc acc cag agg gcc atc gag gcc tcc aac gcc tac agc Gln Asp Arg Leu Thr Gln Arg Ala Ile Glu Ala Ser Asn Ala Tyr Ser 2515 2520 2525	7645

cgc atc ctg cag gcc gtg cag gct gcc gag gat gct ggc cag gcc		7693	
Arg Ile Leu Gln Ala Val Gln Ala Ala Glu Asp Ala Ala Gly Gln Ala			
2530	2535	2540	
ctg cag cag gcg gac cac acg tgg gcg acg gtg gtg cggtt cgg cag ggc ctg		7741	
Leu Gln Gln Ala Asp His Thr Trp Ala Thr Val Val Arg Gln Gly Leu			
2545	2550	2555	
gtg gac cga gcc cag cag ctc ctg gcc aac agc act gca cta gaa gag		7789	
Val Asp Arg Ala Gln Leu Leu Ala Asn Ser Thr Ala Leu Glu Glu			
2560	2565	2570	
gcc atg ctc cag gaa cag cag agg ctg ggc ctt gtg tgg gct gcc ctc		7837	
Ala Met Leu Gln Glu Gln Gln Arg Leu Gly Leu Val Trp Ala Ala Leu			
2575	2580	2585	2590
cag ggt gcc agg acc cag ctc cga gat gtc cgg gcc aag aag gac cag		7885	
Gln Gly Ala Arg Thr Gln Leu Arg Asp Val Arg Ala Lys Lys Asp Gln			
2595	2600	2605	
ctg gag gcg cac atc cag gcg cag gcc atg ctt gcc atg gac aca		7933	
Leu Glu Ala His Ile Gln Ala Ala Gln Ala Met Leu Ala Met Asp Thr			
2610	2615	2620	
gac gag aca agc aag aag atc gca cat gcc aag gct gtg gct gct gaa		7981	
Asp Glu Thr Ser Lys Lys Ile Ala His Ala Lys Ala Val Ala Ala Glu			
2625	2630	2635	
gcc cag gac acc gcc acc cgt gtg cag tcc cag ctg cag gcc atg cag		8029	
Ala Gln Asp Thr Ala Thr Arg Val Gln Ser Gln Leu Gln Ala Met Gln			
2640	2645	2650	
gag aat gtg gag cgg tgg cag ggc cag tac gag ggc ctg cgg ggc cag		8077	
Glu Asn Val Glu Arg Trp Gln Gly Gln Tyr Glu Gly Leu Arg Gly Gln			
2655	2660	2665	2670
gac ctg ggc cag gca gtg ctt gac gca ggc cac tca gtg tcc acc ctg		8125	
Asp Leu Gly Gln Ala Val Leu Asp Ala Gly His Ser Val Ser Thr Leu			
2675	2680	2685	
gag aag acg ctg ccc cag ctg ctg gcc aag ctg agc atc ctg gag aac		8173	
Glu Lys Thr Leu Pro Gln Leu Leu Ala Lys Leu Ser Ile Leu Glu Asn			
2690	2695	2700	
cgt ggg gtg cac aac gcc agc ctg gcc ctg tcc gcc agc att ggc cgc		8221	
Arg Gly Val His Asn Ala Ser Leu Ala Leu Ser Ala Ser Ile Gly Arg			
2705	2710	2715	
gtg cga gag ctc att gcc cag gcc cgg ggg gct gcc agt aag gtc aag		8269	
Val Arg Glu Leu Ile Ala Gln Ala Arg Gly Ala Ala Ser Lys Val Lys			
2720	2725	2730	
gtg ccc atg aag ttc aac ggg cgc tca ggg gtg cag ctg cgc acc cca		8317	
Val Pro Met Lys Phe Asn Gly Arg Ser Gly Val Gln Leu Arg Thr Pro			
2735	2740	2745	2750
cgg gat ctt gcc gac ctt gct gcc tac act gcc ctc aag ttc tac ctg		8365	
Arg Asp Leu Ala Asp Leu Ala Ala Tyr Thr Ala Leu Lys Phe Tyr Leu			
2755	2760	2765	
cag ggc cca gag cct gag cct ggg cag ggt acc gag gat cgc ttt gtg		8413	

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Gln	Gly	Pro	Glu	Pro	Glu	Pro	Gly	Gln	Gly	Thr	Glu	Asp	Arg	Phe	Val
2770															2780
atg	tac	atg	ggc	agc	cgc	cag	gcc	act	ggg	gac	tac	atg	ggt	gtg	tct
Met	Tyr	Met	Gly	Ser	Arg	Gln	Ala	Thr	Gly	Asp	Tyr	Met	Gly	Val	Ser
2785															2795
ctg	cgt	gac	aag	aat	gtg	cac	tgg	gtg	tat	cag	ctg	ggt	gag	gcf	ggc
Leu	Arg	Asp	Lys	Lys	Val	His	Trp	Val	Tyr	Gln	Leu	Gly	Glu	Ala	Gly
2800															2810
cct	gca	gtc	cta	agc	atc	gat	gag	gac	att	ggg	gag	cag	ttc	gca	gct
Pro	Ala	Val	Leu	Ser	Ile	Asp	Glu	Asp	Ile	Gly	Glu	Gln	Phe	Ala	Ala
2815															2830
gtc	agc	ctg	gac	agg	act	ctc	cag	ttt	ggc	cac	atg	tcc	gtc	aca	gtg
Val	Ser	Leu	Asp	Arg	Thr	Leu	Gln	Phe	Gly	His	Met	Ser	Val	Thr	Val
2835															2845
gag	aga	cag	atg	atc	cag	gaa	acc	aag	ggt	gac	acg	gtg	gcc	cct	ggg
Glu	Arg	Gln	Met	Ile	Gln	Glu	Thr	Lys	Gly	Asp	Thr	Val	Ala	Pro	Gly
2850															2860
gca	gag	ggg	ctg	ctc	aac	ctg	cg	cca	gac	gac	ttc	gtc	ttc	tac	gtc
Ala	Glu	Gly	Leu	Leu	Asn	Leu	Arg	Pro	Asp	Asp	Phe	Val	Phe	Tyr	Val
2865															2875
ggg	ggg	tac	ccc	agt	acc	ttc	acg	ccc	cct	ccc	ctg	ctt	cgc	ttc	ccc
Gly	Gly	Tyr	Pro	Ser	Thr	Phe	Thr	Pro	Pro	Pro	Leu	Leu	Arg	Phe	Pro
2880															2890
ggc	tac	cg	ggc	tgc	atc	gag	atg	gac	acg	ctg	aat	gag	gag	gtg	gtc
Gly	Tyr	Arg	Gly	Cys	Ile	Glu	Met	Asp	Thr	Leu	Asn	Glu	Glu	Val	Val
2895															2910
agc	ctc	tac	aac	ttc	gag	agg	acc	ttc	cag	ctg	gac	acg	gct	gtg	gac
Ser	Leu	Tyr	Asn	Phe	Glu	Arg	Thr	Phe	Gln	Leu	Asp	Thr	Ala	Val	Asp
2915															2925
agg	cct	tgt	gcc	cgc	tcc	aag	tcg	acc	ggg	gac	ccg	tgg	ctc	acg	gac
Arg	Pro	Cys	Ala	Arg	Ser	Lys	Ser	Thr	Gly	Asp	Pro	Trp	Leu	Thr	Asp
2930															2940
ggc	tcc	tac	ctg	gac	ggc	acc	ggc	ttc	gcc	cgc	atc	agc	ttc	gac	agt
Gly	Ser	Tyr	Leu	Asp	Gly	Thr	Gly	Phe	Ala	Arg	Ile	Ser	Phe	Asp	Ser
2945															2955
cag	atc	agc	acc	acc	aag	cgc	ttc	gag	cag	gag	ctg	cg	ctc	gtg	tcc
Gln	Ile	Ser	Thr	Thr	Lys	Arg	Phe	Glu	Gln	Glu	Leu	Arg	Leu	Val	Ser
2960															2970
tac	agc	ggg	gtg	ctc	ttc	ctg	aag	cag	cag	agc	cag	ttc	ctg	tgc	
Tyr	Ser	Gly	Val	Leu	Phe	Phe	Leu	Lys	Gln	Gln	Ser	Gln	Phe	Leu	Cys
2975															2990
ttg	gcc	gtg	caa	gaa	ggc	agc	ctc	gtg	ctg	ttg	tat	gac	ttt	ggg	gct
Leu	Ala	Val	Gln	Glu	Gly	Ser	Leu	Val	Leu	Leu	Tyr	Asp	Phe	Gly	Ala
2995															3005
ggc	ctg	aaa	aag	gcc	gtc	cca	ctg	cag	ccc	cca	ccg	ccc	ctg	acc	tac
Gly	Leu	Lys	Lys	Ala	Val	Pro	Leu	Gln	Pro	Pro	Pro	Pro	Leu	Thr	Ser

ESTIMATE

3010	3015	3020	
gcc agc aag gcg atc cag gtg ttc ctg ctg ggg ggc agc cgc aag cgt Ala Ser Lys Ala Ile Gln Val Phe Leu Leu Gly Gly Ser Arg Lys Arg	3025	3030	9181
3035			
gtg ctg gtg cgt gtg gag cgg gcc acg gtg tac agc gtg gag cag gac Val Leu Val Arg Val Glu Arg Ala Thr Val Tyr Ser Val Glu Gln Asp	3040	3045	9229
3050			
aat gat ctg gag ctg gcc gac gcc tac tac ctg ggg ggc gtg cgg ccc Asn Asp Leu Glu Leu Ala Asp Ala Tyr Tyr Leu Gly Gly Val Pro Pro	3055	3060	9277
3065			
3070			
gac cag ctg ccc ccg agc ctg cga tgg ctc ttc ccc acc gga ggc tca Asp Gln Leu Pro Pro Ser Leu Arg Trp Leu Phe Pro Thr Gly Gly Ser	3075	3080	9325
3085			
gtc cgt ggc tgc gtc aaa ggc atc aag gcc ctg ggc aag tat gtg gac Val Arg Gly Cys Val Lys Gly Ile Lys Ala Leu Gly Lys Tyr Val Asp	3090	3095	9373
3100			
ctc aag cgg ctg aac acg aca ggc gtg agc gcc ggc tgc acc gcc gac Leu Lys Arg Leu Asn Thr Thr Gly Val Ser Ala Gly Cys Thr Ala Asp	3105	3110	9421
3115			
ctg ctg gtg ggg cgc gcc atg act ttc cat ggc cac ggc ttc ctt cgc Leu Leu Val Gly Arg Ala Met Thr Phe His Gly His Gly Phe Leu Arg	3120	3125	9469
3130			
ctg gcg ctc tcg aac gtg gca ccg ctc act ggc aac gtc tac tcc ggc Leu Ala Leu Ser Asn Val Ala Pro Leu Thr Gly Asn Val Tyr Ser Gly	3135	3140	9517
3145			
3150			
ttc ggc ttc cac agc gcc cag gac agt gcc ctg ctc tac tac cgg gcg Phe Gly Phe His Ser Ala Gln Asp Ser Ala Leu Leu Tyr Tyr Arg Ala	3155	3160	9565
3165			
tcc ccg gat ggg cta tgc cag gtg tcc ctg cag cag ggc cgt gtg agc Ser Pro Asp Gly Leu Cys Gln Val Ser Leu Gln Gln Gly Arg Val Ser	3170	3175	9613
3180			
cta cag ctc ctg agg act gaa gtg aaa act caa gcg ggc ttc gcc gat Leu Gln Leu Leu Arg Thr Glu Val Lys Thr Gln Ala Gly Phe Ala Asp	3185	3190	9661
3195			
ggt gcc ccc cat tac gtc gcc ttc tac agc aat gcc acg gga gtc tgg Gly Ala Pro His Tyr Val Ala Phe Tyr Ser Asn Ala Thr Gly Val Trp	3200	3205	9709
3210			
ctg tat gtc gat gac cag ctc cag cag atg aag ccc cac cgg gga cca Leu Tyr Val Asp Asp Gln Leu Gln Gln Met Lys Pro His Arg Gly Pro	3215	3220	9757
3225			
3230			
ccc ccc gag ctc cag ccg cag cct gag ggg ccc ccg agg ctc ctc ctg Pro Pro Glu Leu Gln Pro Gln Pro Glu Gly Pro Pro Arg Leu Leu Leu	3235	3240	9805
3245			
gga ggc ctg cct gag tct ggc acc att tac aac ttc agt ggc tgc atc Gly Gly Leu Pro Glu Ser Gly Thr Ile Tyr Asn Phe Ser Gly Cys Ile	3250	3255	9853
3260			

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9901	ser asn val phe val gln arg leu leu gly pro gln arg val phe asp	3265	3270	3275
9949	ctg cag cag aac ctg ggc agc gtc aat gtg agc acg ggc tgt gca ccc Leu Gln Gln Asn Leu Gly Ser Val Asn Val Ser Thr Gly Cys Ala Pro	3280	3285	3290
9997	gcc ctg caa gcc cag acc ccg ggc ctg ggg cct aga gga ctg cag gcc Ala Leu Gln Ala Gln Thr Pro Gly Leu Gly Pro Arg Gly Leu Gln Ala	3295	3300	3305
10045	acc gcc cgg aag gcc tcc cgc cgc agc cgt cag ccc gcc cgg cat cct Thr Ala Arg Lys Ala Ser Arg Arg Ser Arg Gln Pro Ala Arg His Pro	3315	3320	3325
10093	gcc tgc atg ctg ccc cca cac ctc agg acc acc cga gac tcc tac cag Ala Cys Met Leu Pro Pro His Leu Arg Thr Thr Arg Asp Ser Tyr Gln	3330	3335	3340
10141	ttt ggg ggt tcc ctg tcc agt cac ctg gag ttt gtg ggc atc ctg gcc Phe Gly Gly Ser Leu Ser Ser His Leu Glu Phe Val Gly Ile Leu Ala	3345	3350	3355
10189	cga cat agg aac tgg ccc agt ctc tcc atg cac gtc ctc ccg cga agc Arg His Arg Asn Trp Pro Ser Leu Ser Met His Val Leu Pro Arg Ser	3360	3365	3370
10237	tcc cga ggc ctc ctc ttc act gcc cgt ctg agg ccc ggc agc ccc Ser Arg Gly Leu Leu Phe Thr Ala Arg Leu Arg Pro Gly Ser Pro	3375	3380	3385
10285	tcc ctg gcg ctc ttc ctg agc aat ggc cac ttc gtt gca cag atg gaa Ser Leu Ala Leu Phe Leu Ser Asn Gly His Phe Val Ala Gln Met Glu	3395	3400	3405
10333	ggc ctc ggg act cgg ctc cgc gcc cag agc cgc cag cgc tcc cgg cct Gly Leu Gly Thr Arg Leu Arg Ala Gln Ser Arg Gln Arg Ser Arg Pro	3410	3415	3420
10381	ggc cgc tgg cac aag gtc tcc gtg cgc tgg gag aag aac cgg atc ctg Gly Arg Trp His Lys Val Ser Val Arg Trp Glu Lys Asn Arg Ile Leu	3425	3430	3435
10429	ctg gtg acg gac ggg gcc cgg gcc tgg agc cag gag ggg cgg cac cgg Leu Val Thr Asp Gly Ala Arg Ala Trp Ser Gln Glu Gly Pro His Arg	3440	3445	3450
10477	cag cac cag ggg gca gag cac ccc cag ccc cac acc ctc ttt gtg ggc Gln His Gln Gly Ala Glu His Pro Gln Pro His Thr Leu Phe Val Gly	3455	3460	3465
10525	ggc ctc ccg gcc agc agc cac agc tcc aaa ctt ccg gtg acc gtc ggg Gly Leu Pro Ala Ser Ser His Ser Ser Lys Leu Pro Val Thr Val Gly	3475	3480	3485
10573	ttc agc ggc tgt gtg aag aga ctg agg ctg cac ggg agg ccc ctg ggg Phe Ser Gly Cys Val Lys Arg Leu Arg His Gly Arg Pro Leu Gly	3490	3495	3500

TGTCTTGATGTTGAAATGCGGAAAGCTT

gcc ccc aca cgg atg gca ggg gtc aca ccc tgc atc ttg ggc ccc ctg Ala Pro Thr Arg Met Ala Gly Val Thr Pro Cys Ile Leu Gly Pro Leu 3505 3510 3515	10621
gag gcg ggc ctg ttc ttc cca ggc agc ggg gga gtt atc act tta gac Glu Ala Gly Leu Phe Phe Pro Gly Ser Gly Val Ile Thr Leu Asp 3520 3525 3530	10669
ctc cca gga gct aca ctg cct gat gtg ggc ctg gaa ctg gag gtg cgg Leu Pro Gly Ala Thr Leu Pro Asp Val Gly Leu Glu Leu Val Arg 3535 3540 3545 3550	10717
ccc ctg gca gtc acc gga ctg atc ttc cac ttg ggc cag gcc cgg acg Pro Leu Ala Val Thr Gly Leu Ile Phe His Leu Gly Gln Ala Arg Thr 3555 3560 3565	10765
ccc ccc tac ttg cag ttg cag gtg acc gag aag caa gtc ctg ctg cgg Pro Pro Tyr Leu Gln Leu Gln Val Thr Glu Lys Gln Val Leu Leu Arg 3570 3575 3580	10813
gcg gat gac gga gca ggg gag ttc tcc acg tca gtg acc cgc ccc tca Ala Asp Asp Gly Ala Gly Glu Phe Ser Thr Ser Val Thr Arg Pro Ser 3585 3590 3595	10861
gtg ctg tgt gat ggc cag tgg cac cgg cta gcg gtg atg aaa agc ggg Val Leu Cys Asp Gly Gln Trp His Arg Leu Ala Val Met Lys Ser Gly 3600 3605 3610	10909
aat gtg ctc cgg ctg gag gtg gac gcg cag agc aac cac acc gtg ggc Asn Val Leu Arg Leu Glu Val Asp Ala Gln Ser Asn His Thr Val Gly 3615 3620 3625 3630	10957
ccc ttg ctg gcg gct gca gct ggt gcc cca gcc cct ctg tac ctc ggg Pro Leu Leu Ala Ala Ala Gly Ala Pro Ala Pro Leu Tyr Leu Gly 3635 3640 3645	11005
ggc ctg cct gag ccc atg gcc gtg cag ccc tgg ccc ccc gcc tac tgc Gly Leu Pro Glu Pro Met Ala Val Gln Pro Trp Pro Pro Ala Tyr Cys 3650 3655 3660	11053
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aaatgccgga attcgatatac aagcttat	11350

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<211> 3695

<212> PRT
<213> Homo sapiens

<400> 2
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1 5 10 15

Arg Gly Pro Ala Pro Leu Leu Leu Val Gly Leu Ala Leu Leu Gly Ala
20 25 30

Ala Arg Ala Arg Glu Glu Ala Gly Gly Phe Ser Leu His Pro Pro
35 40 45

Tyr Phe Asn Leu Ala Glu Gly Ala Arg Ile Ala Ala Ser Ala Thr Cys
50 55 60

Gly Glu Glu Ala Pro Ala Arg Gly Ser Pro Arg Pro Thr Glu Asp Leu
65 70 75 80

Tyr Cys Lys Leu Val Gly Gly Pro Val Ala Gly Gly Asp Pro Asn Gln
85 90 95

Thr Ile Arg Gly Gln Tyr Cys Asp Ile Cys Thr Ala Ala Asn Ser Asn
100 105 110

Lys Ala His Pro Ala Ser Asn Ala Ile Asp Gly Thr Glu Arg Trp Trp
115 120 125

Gln Ser Pro Pro Leu Ser Arg Gly Leu Glu Tyr Asn Glu Val Asn Val
130 135 140

Thr Leu Asp Leu Gly Gln Val Phe His Val Ala Tyr Val Leu Ile Lys
145 150 155 160

Phe Ala Asn Ser Pro Arg Pro Asp Leu Trp Val Leu Glu Arg Ser Met
165 170 175

Asp Phe Gly Arg Thr Tyr Gln Pro Trp Gln Phe Phe Ala Ser Ser Lys
180 185 190

Arg Asp Cys Leu Glu Arg Phe Gly Pro Gln Thr Leu Glu Arg Ile Thr
195 200 205

Arg Asp Asp Ala Ala Ile Cys Thr Thr Glu Tyr Ser Arg Ile Val Pro
210 215 220

Leu Glu Asn Gly Glu Ile Val Val Ser Leu Val Asn Gly Arg Pro Gly
225 230 235 240

Ala Met Asn Phe Ser Tyr Ser Pro Leu Leu Arg Glu Phe Thr Lys Ala
245 250 255

Thr Asn Val Arg Leu Arg Phe Leu Arg Thr Asn Thr Leu Leu Gly His
260 265 270

Leu Met Gly Lys Ala Leu Arg Asp Pro Thr Val Thr Arg Arg Tyr Tyr
275 280 285

Tyr Ser Ile Lys Asp Ile Ser Ile Gly Gly Arg Cys Val Cys His Gly
290 295 300

TO TEST SUBJECT

His Ala Asp Ala Cys Asp Ala Lys Asp Pro Thr Asp Pro Phe Arg Leu
305 310 315 320

Gln Cys Thr Cys Gln His Asn Thr Cys Gly Gly Thr Cys Asp Arg Cys
325 330 335

Cys Pro Gly Phe Asn Gln Gln Pro Trp Lys Pro Ala Thr Ala Asn Ser
340 345 350

Ala Asn Glu Cys Gln Ser Cys Asn Cys Tyr Gly His Ala Thr Asp Cys
355 360 365

Tyr Tyr Asp Pro Glu Val Asp Arg Arg Arg Ala Ser Gln Ser Leu Asp
370 375 380

Gly Thr Tyr Gln Gly Gly Val Cys Ile Asp Cys Gln His His Thr
385 390 395 400

Ala Gly Val Asn Cys Glu Arg Cys Leu Pro Gly Phe Tyr Arg Ser Pro
405 410 415

Asn His Pro Leu Asp Ser Pro His Val Cys Arg Arg Cys Asn Cys Glu
420 425 430

Ser Asp Phe Thr Asp Gly Thr Cys Glu Asp Leu Thr Gly Arg Cys Tyr
435 440 445

Cys Arg Pro Asn Phe Ser Gly Glu Arg Cys Asp Val Cys Ala Glu Gly
450 455 460

Phe Thr Gly Phe Pro Ser Cys Tyr Pro Thr Pro Ser Ser Ser Asn Asp
465 470 475 480

Thr Arg Glu Gln Val Leu Pro Ala Gly Gln Ile Val Asn Cys Asp Cys
485 490 495

Ser Ala Ala Gly Thr Gln Gly Asn Ala Cys Arg Lys Asp Pro Arg Val
500 505 510

Gly Arg Cys Leu Cys Lys Pro Asn Phe Gln Gly Thr His Cys Glu Leu
515 520 525

Cys Ala Pro Gly Phe Tyr Gly Pro Gly Cys Gln Pro Cys Gln Cys Ser
530 535 540

Ser Pro Gly Val Ala Asp Asp Arg Cys Asp Pro Asp Thr Gly Gln Cys
545 550 555 560

Arg Cys Arg Val Gly Phe Glu Gly Ala Thr Cys Asp Arg Cys Ala Pro
565 570 575

Gly Tyr Phe His Phe Pro Leu Cys Gln Leu Cys Gly Cys Ser Pro Ala
580 585 590

Gly Thr Leu Pro Glu Gly Cys Asp Glu Ala Gly Arg Cys Leu Cys Gln
595 600 605

Pro Glu Phe Ala Gly Pro His Cys Asp Arg Cys Arg Pro Gly Tyr His
610 615 620

Gly Phe Pro Asn Cys Gln Ala Cys Thr Cys Asp Pro Arg Gly Ala Leu

625	630	635	640
Asp Gln Leu Cys Gly Ala Gly Gly Leu Cys Arg Cys Arg Pro Gly Tyr			
645		650	655
Thr Gly Thr Ala Cys Gln Glu Cys Ser Pro Gly Phe His Gly Phe Pro			
660		665	670
Ser Cys Val Pro Cys His Cys Ser Ala Glu Gly Ser Leu His Ala Ala			
675		680	685
Cys Asp Pro Arg Ser Gly Gln Cys Ser Cys Arg Pro Arg Val Thr Gly			
690		695	700
Leu Arg Cys Asp Thr Cys Val Pro Gly Ala Tyr Asn Phe Pro Tyr Cys			
705		710	715
Glu Ala Gly Ser Cys His Pro Ala Gly Leu Ala Pro Val Asp Pro Ala			
725		730	735
Leu Pro Glu Ala Gln Val Pro Cys Met Cys Arg Ala His Val Glu Gly			
740		745	750
Pro Ser Cys Asp Arg Cys Lys Pro Gly Phe Trp Gly Leu Ser Pro Ser			
755		760	765
Asn Pro Glu Gly Cys Thr Arg Cys Ser Cys Asp Leu Arg Gly Thr Leu			
770		775	780
Gly Gly Val Ala Glu Cys Gln Pro Gly Thr Gly Gln Cys Phe Cys Lys			
785		790	795
Pro His Val Cys Gly Gln Ala Cys Ala Ser Cys Lys Asp Gly Phe Phe			
805		810	815
Gly Leu Asp Gln Ala Asp Tyr Phe Gly Cys Arg Ser Cys Arg Cys Asp			
820		825	830
Ile Gly Gly Ala Leu Gly Gln Ser Cys Glu Pro Arg Thr Gly Val Cys			
835		840	845
Arg Cys Arg Pro Asn Thr Gln Gly Pro Thr Cys Ser Glu Pro Ala Arg			
850		855	860
Asp His Tyr Leu Pro Asp Leu His His Leu Arg Leu Glu Leu Glu Glu			
865		870	875
Ala Ala Thr Pro Glu Gly His Ala Val Arg Phe Gly Phe Asn Pro Leu			
885		890	895
Glu Phe Glu Asn Phe Ser Trp Arg Gly Tyr Ala Gln Met Ala Pro Val			
900		905	910
Gln Pro Arg Ile Val Ala Arg Leu Asn Leu Thr Ser Pro Asp Leu Phe			
915		920	925
Trp Leu Val Phe Arg Tyr Val Asn Arg Gly Ala Met Ser Val Ser Gly			
930		935	940
Arg Val Ser Val Arg Glu Glu Gly Arg Ser Ala Ala Cys Ala Asn Cys			
945		950	955
960			

Thr Ala Gln Ser Gln Pro Val Ala Phe Pro Pro Ser Thr Glu Pro Ala
 965 970 975
 Phe Ile Thr Val Pro Gln Arg Gly Phe Gly Glu Pro Phe Val Leu Asn
 980 985 990
 Pro Gly Thr Trp Ala Leu Arg Val Glu Ala Glu Gly Val Leu Leu Asp
 995 1000 1005
 Tyr Val Val Leu Leu Pro Ser Ala Tyr Tyr Glu Ala Ala Leu Leu Gln
 1010 1015 1020
 Leu Arg Val Thr Glu Ala Cys Thr Tyr Arg Pro Ser Ala Gln Gln Ser
 1025 1030 1035 1040
 Gly Asp Asn Cys Leu Leu Tyr Thr His Leu Pro Leu Asp Gly Phe Pro
 1045 1050 1055
 Ser Ala Ala Gly Leu Glu Ala Leu Cys Arg Gln Asp Asn Ser Leu Pro
 1060 1065 1070
 Arg Pro Cys Pro Thr Glu Gln Leu Ser Pro Ser His Pro Pro Leu Ile
 1075 1080 1085
 Thr Cys Thr Gly Ser Asp Val Asp Val Gln Leu Gln Val Ala Val Pro
 1090 1095 1100
 Gln Pro Gly Arg Tyr Ala Leu Val Val Glu Tyr Ala Asn Glu Asp Ala
 1105 1110 1115 1120
 Arg Gln Glu Val Gly Val Ala Val His Thr Pro Gln Arg Ala Pro Gln
 1125 1130 1135
 Gln Gly Leu Leu Ser Leu His Pro Cys Leu Tyr Ser Thr Leu Cys Arg
 1140 1145 1150
 Gly Thr Ala Arg Asp Thr Gln Asp His Leu Ala Val Phe His Leu Asp
 1155 1160 1165
 Ser Glu Ala Ser Val Arg Leu Thr Ala Glu Gln Ala Arg Phe Phe Leu
 1170 1175 1180
 His Gly Val Thr Leu Val Pro Ile Glu Glu Phe Ser Pro Glu Phe Val
 1185 1190 1195 1200
 Glu Pro Arg Val Ser Cys Ile Ser Ser His Gly Ala Phe Gly Pro Asn
 1205 1210 1215
 Ser Ala Ala Cys Leu Pro Ser Arg Phe Pro Lys Pro Pro Gln Pro Ile
 1220 1225 1230
 Ile Leu Arg Asp Cys Gln Val Ile Pro Leu Pro Pro Gly Leu Pro Leu
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 Thr His Ala Gln Asp Leu Thr Pro Ala Thr Ser Pro Ala Gly Pro Arg
 1250 1255 1260
 Pro Arg Pro Pro Thr Ala Val Asp Pro Asp Ala Glu Pro Thr Leu Leu
 1265 1270 1275 1280

F00001234567890

Arg Glu Pro Gln Ala Thr Val Val Phe Thr Thr His Val Pro Thr Leu
 1285 1290 1295
 Gly Arg Tyr Ala Phe Leu Leu His Gly Tyr Gln Pro Ala His Pro Thr
 1300 1305 1310
 Phe Pro Val Glu Val Leu Ile Asn Ala Gly Arg Val Trp Gln Gly His
 1315 1320 1325
 Ala Asn Ala Ser Phe Cys Pro His Gly Tyr Gly Cys Arg Thr Leu Val
 1330 1335 1340
 Val Cys Glu Gly Gln Ala Leu Leu Asp Val Thr His Ser Glu Leu Thr
~~1345~~ 1350 1355 1360
 Val Thr Val Arg Val Pro Glu Gly Arg Trp Leu Trp Leu Asp Tyr Val
 1365 1370 1375
 Leu Val Val Pro Glu Asn Val Tyr Ser Phe Gly Tyr Leu Arg Glu Glu
 1380 1385 1390
 Pro Leu Asp Lys Ser Tyr Asp Phe Ile Ser His Cys Ala Ala Gln Gly
 1395 1400 1405
 Tyr His Ile Ser Pro Ser Ser Ser Leu Phe Cys Arg Asn Ala Ala
 1410 1415 1420
 Ala Ser Leu Ser Leu Phe Tyr Asn Asn Gly Ala Arg Pro Cys Gly Cys
~~1425~~ 1430 1435 1440
 His Glu Val Gly Ala Thr Gly Pro Thr Cys Glu Pro Phe Gly Gly Gln
 1445 1450 1455
 Cys Pro Cys His Ala His Val Ile Gly Arg Asp Cys Ser Arg Cys Ala
 1460 1465 1470
 Thr Gly Tyr Trp Gly Phe Pro Asn Cys Arg Pro Cys Asp Cys Gly Ala
 1475 1480 1485
 Arg Leu Cys Asp Glu Leu Thr Gly Gln Cys Ile Cys Pro Pro Arg Thr
 1490 1495 1500
 Ile Pro Pro Asp Cys Leu Leu Cys Gln Pro Gln Thr Phe Gly Cys His
~~1505~~ 1510 1515 1520
 Pro Leu Val Gly Cys Glu Glu Cys Asn Cys Ser Gly Pro Gly Ile Gln
 1525 1530 1535
 Glu Leu Thr Asp Pro Thr Cys Asp Thr Asp Ser Gly Gln Cys Lys Cys
 1540 1545 1550
 Arg Pro Asn Val Thr Gly Arg Arg Cys Asp Thr Cys Ser Pro Gly Phe
 1555 1560 1565
 His Gly Tyr Pro Arg Cys Arg Pro Cys Asp Cys His Glu Ala Gly Thr
 1570 1575 1580
 Ala Pro Gly Val Cys Asp Pro Leu Thr Gly Gln Cys Tyr Cys Lys Glu
~~1585~~ 1590 1595 1600
 Asn Val Gln Gly Pro Lys Cys Asp Gln Cys Ser Leu Gly Thr Phe Ser

1605	1610	1615
Leu Asp Ala Ala Asn Pro Lys Gly Cys Thr Arg Cys Phe Cys Phe Gly 1620	1625	1630
Ala Thr Glu Arg Cys Arg Ser Ser Tyr Thr Arg Gln Glu Phe Val 1635	1640	1645
Asp Met Glu Gly Trp Val Leu Leu Ser Thr Asp Arg Gln Val Val Pro 1650	1655	1660
His Glu Arg Gln Pro Gly Thr Glu Met Leu Arg Ala Asp Leu Arg His 1665	1670	1675
Val Pro Glu Ala Val Pro Glu Ala Phe Pro Glu Leu Tyr Trp Gln Ala 1685	1690	1695
Pro Pro Ser Tyr Leu Gly Asp Arg Val Ser Ser Tyr Gly Gly Thr Leu 1700	1705	1710
Arg Tyr Glu Leu His Ser Glu Thr Gln Arg Gly Asp Val Phe Val Pro 1715	1720	1725
Met Glu Ser Arg Pro Asp Val Val Leu Gln Gly Asn Gln Met Ser Ile 1730	1735	1740
Thr Phe Leu Glu Pro Ala Tyr Pro Thr Pro Gly His Val His Arg Gly 1745	1750	1755
Gln Leu Gln Leu Val Glu Gly Asn Phe Arg His Thr Glu Thr Arg Asn 1765	1770	1775
Thr Val Ser Arg Glu Glu Leu Met Met Val Leu Ala Ser Leu Glu Gln 1780	1785	1790
Leu Gln Ile Arg Ala Leu Phe Ser Gln Ile Ser Ser Ala Val Ser Leu 1795	1800	1805
Arg Arg Val Ala Leu Glu Val Ala Ser Pro Ala Gly Gln Gly Ala Leu 1810	1815	1820
Ala Ser Asn Val Glu Leu Cys Leu Cys Pro Ala Ser Tyr Arg Gly Asp 1825	1830	1835
Ser Cys Gln Glu Cys Ala Pro Gly Phe Tyr Arg Asp Val Lys Gly Leu 1845	1850	1855
Phe Leu Gly Arg Cys Val Pro Cys Gln Cys His Gly His Ser Asp Arg 1860	1865	1870
Cys Leu Pro Gly Ser Gly Val Cys Val Asp Cys Gln His Asn Thr Glu 1875	1880	1885
Gly Ala His Cys Glu Arg Cys Gln Ala Gly Phe Met Ser Ser Arg Asp 1890	1895	1900
Asp Pro Ser Ala Pro Cys Val Ser Cys Pro Cys Pro Leu Ser Val Pro 1905	1910	1915
Ser Asn Asn Phe Ala Glu Gly Cys Val Leu Arg Gly Arg Thr Gln 1925	1930	1935

1000 900 800 700 600 500 400 300 200 100

Cys	Leu	Cys	Lys	Pro	Gly	Tyr	Ala	Gly	Ala	Ser	Cys	Glu	Arg	Cys	Ala
							1940		1945				1950		
Pro	Gly	Phe	Phe	Gly	Asn	Pro	Leu	Val	Leu	Gly	Ser	Ser	Cys	Gln	Pro
							1955		1960				1965		
Cys	Asp	Cys	Ser	Gly	Asn	Gly	Asp	Pro	Asn	Leu	Leu	Phe	Ser	Asp	Cys
							1970		1975				1980		
Asp	Pro	Leu	Thr	Gly	Ala	Cys	Arg	Gly	Cys	Leu	Arg	His	Thr	Thr	Gly
							1985		1990			1995			2000
Pro	Arg	Cys	Glu	Ile	Cys	Ala	Pro	Gly	Phe	Tyr	Gly	Asn	Ala	Leu	Leu
							2005		2010			2015			
Pro	Gly	Asn	Cys	Thr	Arg	Cys	Asp	Cys	Thr	Pro	Cys	Gly	Thr	Glu	Ala
							2020		2025			2030			
Cys	Asp	Pro	His	Ser	Gly	His	Cys	Leu	Cys	Lys	Ala	Gly	Val	Thr	Gly
							2035		2040			2045			
Arg	Arg	Cys	Asp	Arg	Cys	Gln	Glu	Gly	His	Phe	Gly	Asn	Gly	Cys	
							2050		2055			2060			
Gly	Gly	Cys	Arg	Pro	Cys	Ala	Cys	Gly	Pro	Ala	Ala	Glu	Gly	Ser	Glu
							2065		2070			2075			2080
Cys	His	Pro	Gln	Ser	Gly	Gln	Cys	His	Cys	Arg	Pro	Gly	Thr	Met	Gly
							2085		2090			2095			
Pro	Gln	Cys	Arg	Glu	Cys	Ala	Pro	Gly	Tyr	Trp	Gly	Leu	Pro	Glu	Gln
							2100		2105			2110			
Gly	Cys	Arg	Arg	Cys	Gln	Cys	Pro	Gly	Gly	Arg	Cys	Asp	Pro	His	Thr
							2115		2120			2125			
Gly	Arg	Cys	Asn	Cys	Pro	Pro	Gly	Leu	Ser	Gly	Glu	Arg	Cys	Asp	Thr
							2130		2135			2140			
Cys	Ser	Gln	Gln	His	Gln	Val	Pro	Val	Pro	Gly	Gly	Pro	Val	Gly	His
							2145		2150			2155			2160
Ser	Ile	His	Cys	Glu	Val	Cys	Asp	His	Cys	Val	Val	Leu	Leu	Asp	
							2165		2170			2175			
Asp	Leu	Glu	Arg	Ala	Gly	Ala	Leu	Leu	Pro	Ala	Ile	His	Glu	Gln	Leu
							2180		2185			2190			
Arg	Gly	Ile	Asn	Ala	Ser	Ser	Met	Ala	Trp	Ala	Arg	Leu	His	Arg	Leu
							2195		2200			2205			
Asn	Ala	Ser	Ile	Ala	Asp	Leu	Gln	Ser	Gln	Leu	Arg	Ser	Pro	Leu	Gly
							2210		2215			2220			
Pro	Arg	His	Glu	Thr	Ala	Gln	Gln	Leu	Glu	Val	Leu	Glu	Gln	Gln	Ser
							2225		2230			2235			2240
Thr	Ser	Leu	Gly	Gln	Asp	Ala	Arg	Arg	Leu	Gly	Gly	Gln	Ala	Val	Gly
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Thr Arg Asp Gln Ala Ser Gln Leu Leu Ala Gly Thr Glu Ala Thr Leu
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 Gly His Ala Lys Thr Leu Leu Ala Ala Ile Arg Ala Val Asp Arg Thr
 2275 2280 2285
 Leu Ser Glu Leu Met Ser Gln Thr Gly His Leu Gly Leu Ala Asn Ala
 2290 2295 2300
 Ser Ala Pro Ser Gly Glu Gln Leu Leu Arg Thr Leu Ala Glu Val Glu
 2305 2310 2315 2320
 Arg Leu Leu Trp Glu Met Arg Ala Arg Asp Leu Gly Ala Pro Gln Ala
 2325 2330 2335
 Ala Ala Glu Ala Glu Leu Ala Ala Gln Arg Leu Leu Ala Arg Val
 2340 2345 2350
 Gln Glu Gln Leu Ser Ser Leu Trp Glu Glu Asn Gln Ala Leu Ala Thr
 2355 2360 2365
 Gln Thr Arg Asp Arg Leu Ala Gln His Glu Ala Gly Leu Met Asp Leu
 2370 2375 2380
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 2385 2390 2395 2400
 Leu Asn Ser Arg Asn Gln Glu Arg Leu Glu Glu Ala Leu Gln Arg Lys
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 Ala Arg Asp Thr Leu Ala Ser Val Phe Arg Leu Leu His Ser Leu Asp
 2435 2440 2445
 Gln Ala Lys Glu Glu Leu Glu Arg Leu Ala Ala Ser Leu Asp Gly Ala
 2450 2455 2460
 Arg Thr Pro Leu Leu Gln Arg Met Gln Thr Phe Ser Pro Ala Gly Ser
 2465 2470 2475 2480
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 Gln Ala Asp His Thr Trp Ala Thr Val Val Arg Gln Gly Leu Val Asp
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 Arg Ala Gln Gln Leu Leu Ala Asn Ser Thr Ala Leu Glu Glu Ala Met
 2565 2570 2575
 Leu Gln Glu Gln Gln Arg Leu Gly Leu Val Trp Ala Ala Leu Gln Gly

2580 2585 2590

Ala Arg Thr Gln Leu Arg Asp Val Arg Ala Lys Lys Asp Gln Leu Glu
2595 2600 2605

Ala His Ile Gln Ala Ala Gln Ala Met Leu Ala Met Asp Thr Asp Glu
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Thr Ser Lys Lys Ile Ala His Ala Lys Ala Val Ala Ala Glu Ala Gln
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Asp Thr Ala Thr Arg Val Gln Ser Gln Leu Gln Ala Met Gln Glu Asn
2645 2650 2655

Val Glu Arg Trp Gln Gly Gln Tyr Glu Gly Leu Arg Gly Gln Asp Leu
2660 2665 2670

Gly Gln Ala Val Leu Asp Ala Gly His Ser Val Ser Thr Leu Glu Lys
2675 2680 2685

Thr Leu Pro Gln Leu Leu Ala Lys Leu Ser Ile Leu Glu Asn Arg Gly
2690 2695 2700

Val His Asn Ala Ser Leu Ala Leu Ser Ala Ser Ile Gly Arg Val Arg
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Glu Leu Ile Ala Gln Ala Arg Gly Ala Ala Ser Lys Val Lys Val Pro
2725 2730 2735

Met Lys Phe Asn Gly Arg Ser Gly Val Gln Leu Arg Thr Pro Arg Asp
2740 2745 2750

Leu Ala Asp Leu Ala Ala Tyr Thr Ala Leu Lys Phe Tyr Leu Gln Gly
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Pro Glu Pro Glu Pro Gly Gln Gly Thr Glu Asp Arg Phe Val Met Tyr
2770 2775 2780

Met Gly Ser Arg Gln Ala Thr Gly Asp Tyr Met Gly Val Ser Leu Arg
2785 2790 2795 2800

Asp Lys Lys Val His Trp Val Tyr Gln Leu Gly Glu Ala Gly Pro Ala
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Val Leu Ser Ile Asp Glu Asp Ile Gly Glu Gln Phe Ala Ala Val Ser
2820 2825 2830

Leu Asp Arg Thr Leu Gln Phe Gly His Met Ser Val Thr Val Glu Arg
2835 2840 2845

Gln Met Ile Gln Glu Thr Lys Gly Asp Thr Val Ala Pro Gly Ala Glu
2850 2855 2860

Gly Leu Leu Asn Leu Arg Pro Asp Asp Phe Val Phe Tyr Val Gly Gly
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Tyr Pro Ser Thr Phe Thr Pro Pro Pro Leu Leu Arg Phe Pro Gly Tyr
2885 2890 2895

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 Ser Thr Thr Lys Arg Phe Glu Gln Glu Leu Arg Leu Val Ser Tyr Ser
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 Asp Gly Leu Cys Gln Val Ser Leu Gln Gln Gly Arg Val Ser Leu Gln
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 Pro His Tyr Val Ala Phe Tyr Ser Asn Ala Thr Gly Val Trp Leu Tyr
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 Gly Leu Phe Phe Pro Gly Ser Gly Gly Val Ile Thr Leu Asp Leu Pro
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 Gly Ala Thr Leu Pro Asp Val Gly Leu Glu Leu Glu Val Arg Pro Leu
 3540 3545 3550
 Ala Val Thr Gly Leu Ile Phe His Leu Gly Gln Ala Arg Thr Pro Pro

3555	3560	3565
Tyr Leu Gln Leu Gln Val Thr Glu Lys Gln Val Leu Leu Arg Ala Asp 3570	3575	3580
Asp Gly Ala Gly Glu Phe Ser Thr Ser Val Thr Arg Pro Ser Val Leu 3585	3590	3595
Cys Asp Gly Gln Trp His Arg Leu Ala Val Met Lys Ser Gly Asn Val 3605	3610	3615
Leu Arg Leu Glu Val Asp Ala Gln Ser Asn His Thr Val Gly Pro Leu 3620	3625	3630
Leu Ala Ala Ala Ala Gly Ala Pro Ala Pro Leu Tyr Leu Gly Gly Leu 3635	3640	3645
Pro Glu Pro Met Ala Val Gln Pro Trp Pro Pro Ala Tyr Cys Gly Cys 3650	3655	3660
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aat cag aca atc cag ggc cag tac tgt gac atc tgt aca gct gcc aac Asn Gln Thr Ile Gln Gly Gln Tyr Cys Asp Ile Cys Thr Ala Ala Asn 20 25 30		96
agc aac aag gca cac cct gtg agc aac gcc atc gat ggc acg gag cgc Ser Asn Lys Ala His Pro Val Ser Asn Ala Ile Asp Gly Thr Glu Arg 35 40 45		144
tgg tgg cag agc cca ccc ctg tcc cgt ggc ctg gag tac aat gag gtc Trp Trp Gln Ser Pro Pro Leu Ser Arg Gly Leu Glu Tyr Asn Glu Val 50 55 60		192
aac gtc aca ctg gac ctg ggc cag gtg ttc cat gtg gcc tat gtg ctc Asn Val Thr Leu Asp Leu Gly Gln Val Phe His Val Ala Tyr Val Leu 65 70 75 80		240
atc aag ttt gcc aac tca cct cgg cct gac ctc tgg gtg ctg gag cgg Ile Lys Phe Ala Asn Ser Pro Arg Pro Asp Leu Trp Val Leu Glu Arg 85 90 95		288

tcc aca gac ttc ggt cac act tat cag ccg tgg cag ttc ttt gcc tcc Ser Thr Asp Phe Gly His Thr Tyr Gln Pro Trp Gln Phe Phe Ala Ser	336
100 105 110	
tcc aag agg gat tgt ttg gag cgg ttt gga cct cgg act cta gag cgc Ser Lys Arg Asp Cys Leu Glu Arg Phe Gly Pro Arg Thr Leu Glu Arg	384
115 120 125	
atc acg cag gac gac gtc atc tgc acc aca gaa tac tcg cga ata Ile Thr Gln Asp Asp Asp Val Ile Cys Thr Thr Glu Tyr Ser Arg Ile	432
130 135 140	
gtg cct ttg gag aat ggc gag att gtg gtg tcc ttg gta aat ggg cgc Val Pro Leu Glu Asn Gly Glu Ile Val Val Ser Leu Val Asn Gly Arg	480
145 150 155 160	
cct ggg gcc ttg aac ttc tcc tac tca ccg tta ctt cga gac ttc acc Pro Gly Ala Leu Asn Phe Ser Tyr Ser Pro Leu Leu Arg Asp Phe Thr	528
165 170 175	
aaa gcc acc aac atc cgc ttg cgg ttt ctg cga acc aac acg cta ctg Lys Ala Thr Asn Ile Arg Leu Arg Phe Leu Arg Thr Asn Thr Leu Leu	576
180 185 190	
ggc cac ctc atg ggc aag gcg ctg cgg gac ccc aca gtc acc cgc agg Gly His Leu Met Gly Lys Ala Leu Arg Asp Pro Thr Val Thr Arg Arg	624
195 200 205	
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210 215 220	
cat ggc cac gca gat gtc tgt gac gcc aag gac cca ttg gat cct ttc His Gly His Ala Asp Val Cys Asp Ala Lys Asp Pro Leu Asp Pro Phe	720
225 230 235 240	
agg ctg cag tgt gcc tgc cag cac aat aca tgt gga ggc tct tgt gac Arg Leu Gln Cys Ala Cys Gln His Asn Thr Cys Gly Gly Ser Cys Asp	768
245 250 255	
cga tgc tgt cca ggc ttc aac cag cag ccg tgg aag ccc gcc acc acg Arg Cys Cys Pro Gly Phe Asn Gln Gln Pro Trp Lys Pro Ala Thr Thr	816
260 265 270	
gac agc gcc aat gag tgc cag tcc tgc aat tgc cac ggc cat gcc tac Asp Ser Ala Asn Glu Cys Gln Ser Cys Asn Cys His Gly His Ala Tyr	864
275 280 285	
gac tgt tac tac gac cct gag gtg gat cgg cgc aat gcc agc cag aac Asp Cys Tyr Tyr Asp Pro Glu Val Asp Arg Arg Asn Ala Ser Gln Asn	912
290 295 300	
cag gac aac gtg tac cag ggt gga ggt gtc tgc ctg gat tgc cag cat Gln Asp Asn Val Tyr Gln Gly Gly Val Cys Leu Asp Cys Gln His	960
305 310 315 320	
cac act acg ggt atc aac tgt gag cgt tgt ctg cct ggc ttc ttc cgt His Thr Thr Gly Ile Asn Cys Glu Arg Cys Leu Pro Gly Phe Phe Arg	1008
325 330 335	
gcc cct gac cag cct ctc gac tca cct cat gtc tgt cgg ccc tgc gac	1056

Ala Pro Asp Gln Pro Leu Asp Ser Pro His Val Cys Arg Pro Cys Asp			
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Cys Glu Ser Asp Phe Thr Asp Gly Thr Cys Glu Asp Leu Thr Gly Arg			
355	360	365	
tgt tac tgc agg ccg aac ttc aca gga gag cta tgt gct gcc tgc gct			1152
Cys Tyr Cys Arg Pro Asn Phe Thr Gly Glu Leu Cys Ala Ala Cys Ala			
370	375	380	
gag ggc tac acg gac ttc cca cac tgc tac cct ctg cct tca ttt cct			1200
Glu Gly Tyr Thr Asp Phe Pro His Cys Tyr Pro Leu Pro Ser Phe Pro			
385	390	395	400
cac aat gac acg aga gaa cag gtg ctt ccc gct gga caa atc gtg aac			1248
His Asn Asp Thr Arg Glu Gln Val Leu Pro Ala Gly Gln Ile Val Asn			
405	410	415	
tgt gat tgc aat gct gca ggg acc cag ggc aat gcc tgc cgg aag gac			1296
Cys Asp Cys Asn Ala Ala Gly Thr Gln Gly Asn Ala Cys Arg Lys Asp			
420	425	430	
cca agg ttg gga cgg tgt gtc tgc aaa ccc aac ttc cgg ggt gcc cac			1344
Pro Arg Leu Gly Arg Cys Val Cys Lys Pro Asn Phe Arg Gly Ala His			
435	440	445	
tgt gag ctc tgt gct cct gga ttc cac ggg cct agc tgc cac cca tgc			1392
Cys Glu Leu Cys Ala Pro Gly Phe His Gly Pro Ser Cys His Pro Cys			
450	455	460	
cag tgt tcc agc cct ggg gta gcc aac agc ctc tgt gac cca gag tct			1440
Gln Cys Ser Ser Pro Gly Val Ala Asn Ser Leu Cys Asp Pro Glu Ser			
465	470	475	480
ggc cag tgc atg tgc cgc acc ggc ttt gag ggg gac agg tgt gac cac			1488
Gly Gln Cys Met Cys Arg Thr Gly Phe Glu Gly Asp Arg Cys Asp His			
485	490	495	
tgt gcc ctt ggc tat ttc cac ttc cct ctc tgt cag ctg tgt ggc tgc			1536
Cys Ala Leu Gly Tyr Phe His Phe Pro Leu Cys Gln Leu Cys Gly Cys			
500	505	510	
agc cca gca ggg acc ctg cct gaa ggc tgt gac gag gct ggc cgc tgc			1584
Ser Pro Ala Gly Thr Leu Pro Glu Gly Cys Asp Glu Ala Gly Arg Cys			
515	520	525	
cag tgc cga cct ggc ttt gac ggt cct cac tgt gac cga tgc ctt cca			1632
Gln Cys Arg Pro Gly Phe Asp Gly Pro His Cys Asp Arg Cys Leu Pro			
530	535	540	
gga tac cat ggg tat ccc gac tgt cac gct tgt gcc tgt gac cct cgg			1680
Gly Tyr His Gly Tyr Pro Asp Cys His Ala Cys Ala Cys Asp Pro Arg			
545	550	555	560
ggg gcc ctg gat caa cag tgt gga gtg ggc ggt ttg tgc cac tgc cgt			1728
Gly Ala Leu Asp Gln Gln Cys Gly Val Gly Gly Leu Cys His Cys Arg			
565	570	575	
cct ggc aac aca ggt gcc act tgt cag gaa tgt agc ccc ggc ttc tac			1776
Pro Gly Asn Thr Gly Ala Thr Cys Gln Glu Cys Ser Pro Gly Phe Tyr			

580

585

590

gac ttc ccc agc tgc atc ccc tgc cac tgc tct gcc gat ggc tcc ttg Gly Phe Pro Ser Cys Ile Pro Cys His Cys Ser Ala Asp Gly Ser Leu 595 600 605	1824
cat aca acc tgt gac ccg aca acc ggc cag tgt agg tgt cga ccc cga His Thr Thr Cys Asp Pro Thr Thr Gly Gln Cys Arg Cys Arg Pro Arg 610 615 620	1872
gtg aca gga cta cat tgt gat atg tgt gta cca ggc gcc tat aac ttc Val Thr Gly Leu His Cys Asp Met Cys Val Pro Gly Ala Tyr Asn Phe 625 630 635 640	1920
ccc tac tgt gaa gct ggc tct tgt cat cct gct ggt ctg gcc cca gcc Pro Tyr Cys Glu Ala Gly Ser Cys His Pro Ala Gly Leu Ala Pro Ala 645 650 655	1968
aat cct gcc ctt cct gag aca cag gct ccc tgt atg tgc cgg gct cac Asn Pro Ala Leu Pro Glu Thr Gln Ala Pro Cys Met Cys Arg Ala His 660 665 670	2016
gtg gaa ggg cca agc tgt gat cgc tgt aaa cct ggg tac tgg ggg ctg Val Glu Gly Pro Ser Cys Asp Arg Cys Lys Pro Gly Tyr Trp Gly Leu 675 680 685	2064
agc gcc agc aac cct gaa ggc tgc aca cgc tgc agc tgt gac cca cga Ser Ala Ser Asn Pro Glu Gly Cys Thr Arg Cys Ser Cys Asp Pro Arg 690 695 700	2112
ggc acc ctg ggt gga gtt act gag tgc cag ggc aat ggg cag tgc ttc Gly Thr Leu Gly Gly Val Thr Glu Cys Gln Gly Asn Gly Gln Cys Phe 705 710 715 720	2160
tgc aag gct cac gtg tgt ggc aag acc tgt gca gcc tgc aag gat ggc Cys Lys Ala His Val Cys Gly Lys Thr Cys Ala Ala Cys Lys Asp Gly 725 730 735	2208
ttc ttt ggc ctg gat tat gct gac tac ttt ggc tgc cgt agc tgt agg Phe Phe Gly Leu Asp Tyr Ala Asp Tyr Phe Gly Cys Arg Ser Cys Arg 740 745 750	2256
tgt gat gtt ggt ggt gcc ctg ggt cag ggc tgt gaa cca aag aca ggt Cys Asp Val Gly Gly Ala Leu Gly Gln Gly Cys Glu Pro Lys Thr Gly 755 760 765	2304
gcc tgc agg tgc cgc cct aac acc caa gga ccc acc tgt agc gag cca Ala Cys Arg Cys Arg Pro Asn Thr Gln Gly Pro Thr Cys Ser Glu Pro 770 775 780	2352
gcg aag gac cac tac ttg cca gac ctg cac cac atg cgg ctg gaa cta Ala Lys Asp His Tyr Leu Pro Asp Leu His His Met Arg Leu Glu Leu 785 790 795 800	2400
gag gag gcg gcc act ccc gag ggc cac gct gta cgc ttt ggc ttc aac Glu Glu Ala Ala Thr Pro Glu Gly His Ala Val Arg Phe Gly Asn 805 810 815	2448
ccc ctg gag ttt gag aac ttt agc tgg aga ggc tac gca cac atg atg Pro Leu Glu Phe Glu Asn Phe Ser Trp Arg Gly Tyr Ala His Met Met 820 825 830	2496

gct atc cag ccc agg att gtg gcc agg ctg aac gtg acc tcc cct gac Ala Ile Gln Pro Arg Ile Val Ala Arg Leu Asn Val Thr Ser Pro Asp 835 840 845	2544
ctc ttt cga ctg gtt ttc cga tat gtc aac cgt gga tca acc agc gtg Leu Phe Arg Leu Val Phe Arg Tyr Val Asn Arg Gly Ser Thr Ser Val 850 855 860	2592
aat ggg cag atc tct gtt cgt gaa gag ggc aag ctt tcc agc tgt acc Asn Gly Gln Ile Ser Val Arg Glu Glu Gly Lys Leu Ser Ser Cys Thr 865 870 875 880	2640
aac tgc aca gag cag agc cag cca gtg gct ttc cca ccc agc act gag Asn Cys Thr Glu Gln Ser Gln Pro Val Ala Phe Pro Pro Ser Thr Glu 885 890 895	2688
cct gcc ttt gtc act gtg ccc cag agg ggc ttt ggg gaa ccc ttt gtg Pro Ala Phe Val Thr Val Pro Gln Arg Gly Phe Gly Glu Pro Phe Val 900 905 910	2736
ctg aac ccc ggc atc tgg gcc ttg ctg gtc gag gct gaa ggt gta ctc Leu Asn Pro Gly Ile Trp Ala Leu Leu Val Glu Ala Glu Gly Val Leu 915 920 925	2784
ttg gac tac gtg gtc cta ctg ccc agc acc tac tat gag gca gct ctc Leu Asp Tyr Val Val Leu Leu Pro Ser Thr Tyr Tyr Glu Ala Ala Leu 930 935 940	2832
cta cag cat cga gta acg gag gcc tgt acc tac cgt ccc tca gcc ctg Leu Gln His Arg Val Thr Glu Ala Cys Thr Tyr Arg Pro Ser Ala Leu 945 950 955 960	2880
cac tcc aca gag aac tgt ctt gtc tat gct cac cta ccc ctg gat ggc His Ser Thr Glu Asn Cys Leu Val Tyr Ala His Leu Pro Leu Asp Gly 965 970 975	2928
ttc cct tca gca gct gga act gag gcc ctg tgt cgc cat gac aac agc Phe Pro Ser Ala Ala Gly Thr Glu Ala Leu Cys Arg His Asp Asn Ser 980 985 990	2976
ctg ccc cgg ccc tgc ccc aca gag cag ctc agc ccc tca cac cca ccg Leu Pro Arg Pro Cys Pro Thr Glu Gln Leu Ser Pro Ser His Pro Pro 995 1000 1005	3024
ctg gcg acc tgc ttc ggc agt gat gtg gac atc cag ctc gag atg gcc Leu Ala Thr Cys Phe Gly Ser Asp Val Asp Ile Gln Leu Glu Met Ala 1010 1015 1020	3072
gtg cct cag cct ggc caa tat gtt ctc gtg gtg gaa tat gtc ggt gag Val Pro Gln Pro Gly Gln Tyr Val Leu Val Val Glu Tyr Val Gly Glu 1025 1030 1035 1040	3120
gat tca cac caa gag atg gga gtg gct gtg cac acc cct cag aga gcc Asp Ser His Gln Glu Met Gly Val Ala Val His Thr Pro Gln Arg Ala 1045 1050 1055	3168
ccc cag caa ggg gtg ctc aac ctc cac ccc tgc cca tac agc tcc ctg Pro Gln Gln Gly Val Leu Asn Leu His Pro Cys Pro Tyr Ser Ser Leu 1060 1065 1070	3216

tgc	cgg	agt	ccg	gct	cg	gac	acc	cag	cat	cat	cta	gcc	atc	ttc	cac		3264
Cys	Arg	Ser	Pro	Ala	Arg	Asp	Thr	Gln	His	His	Leu	Ala	Ile	Phe	His		
1075							1080								1085		
ctg	gac	tct	gag	gct	agc	atc	cg	gtc	ctc	aca	gct	gag	caa	gct	cac	ttc	3312
Leu	Asp	Ser	Glu	Ala	Ser	Ile	Arg	Leu	Thr	Ala	Glu	Gln	Ala	His	Phe		
1090								1095							1100		
ttc	ctg	cac	agc	gtc	acc	ctg	gta	cct	gtg	gag	gag	ttc	agt	act	gag		3360
Phe	Leu	His	Ser	Val	Thr	Leu	Val	Pro	Val	Glu	Glu	Phe	Ser	Thr	Glu		
1105								1110							1115		1120
ttt	gtg	gag	ccc	cg	gtc	ttc	tgt	gtg	agc	agt	cat	gga	act	ttc	aac		3408
Phe	Val	Glu	Pro	Arg	Val	Phe	Cys	Val	Ser	Ser	His	Gly	Thr	Phe	Asn		
1125								1130							1135		
ccc	agc	agt	gct	gcc	tgt	cta	gcc	tcc	cga	ttc	ccg	aag	cca	ccg	cag		3456
Pro	Ser	Ser	Ala	Ala	Cys	Leu	Ala	Ser	Arg	Phe	Pro	Lys	Pro	Pro	Gln		
1140								1145							1150		
ccc	atc	atc	ctt	aag	gac	tgc	cag	gtc	ttg	ccg	ctg	cct	ccc	gac	ctg		3504
Pro	Ile	Ile	Leu	Lys	Asp	Cys	Gln	Val	Leu	Pro	Leu	Pro	Pro	Asp	Leu		
1155								1160							1165		
cct	ctg	act	cag	tct	cag	gag	ctc	tca	cca	gg	gca	ccc	ccc	gag	gga		3552
Pro	Leu	Thr	Gln	Ser	Gln	Glu	Leu	Ser	Pro	Gly	Ala	Pro	Pro	Glu	Gly		
1170								1175							1180		
cca	cag	cct	cg	cc	ca	act	g	cg	gt	gat	c	ct	aat	g	ca	gaa	3600
Pro	Gln	Pro	Arg	Pro	Pro	Thr	Ala	Val	Asp	Pro	Asn	Ala	Glu	Pro	Thr		
1185								1190							1195		1200
ttg	ctg	cgc	cac	ccc	cag	ggc	ac	gt	gt	ttc	acc	acc	cag	gt	cc		3648
Leu	Leu	Arg	His	Pro	Gln	Gly	Thr	Val	Val	Phe	Thr	Thr	Gln	Val	Pro		
1205								1210							1215		
acc	ctg	ggc	cgc	tat	gcc	ttc	ctg	ctg	cac	ggc	tac	cag	ccg	gtc	cac		3696
Thr	Leu	Gly	Arg	Tyr	Ala	Phe	Leu	Leu	His	Gly	Tyr	Gln	Pro	Val	His		
1220								1225							1230		
ccc	tcc	tcc	cct	gt	gag	gt	a	tc	tt	aat	gg	gc	cg	atc	tgg	cag	3744
Pro	Ser	Phe	Pro	Val	Glu	Val	Leu	Ile	Asn	Gly	Gly	Arg	Ile	Trp	Gln		
1235								1240							1245		
ggc	cac	gcc	aac	ggc	agc	ttt	tgt	cct	cat	gg	tat	gg	gc	tgc	cgt	acc	3792
Gly	His	Ala	Asn	Ala	Ser	Phe	Cys	Pro	His	Gly	Tyr	Gly	Cys	Arg	Thr		
1250								1255							1260		
ctg	gt	tt	tgt	gag	gg	cag	ac	gt	ct	gt	at	tt	ac	gac	aa	gag	3840
Leu	Val	Leu	Cys	Glu	Gly	Gln	Thr	Met	Leu	Asp	Val	Thr	Asp	Asn	Glu		
1265								1270							1275		1280
ctc	acc	gt	tg	cgt	gt	cc	gaa	gg	cc	tgg	ct	cc	tgg	ct	g	ac	3888
Leu	Thr	Val	Thr	Val	Arg	Val	Pro	Glu	Gly	Arg	Trp	Leu	Trp	Leu	Asp		
1285								1290							1295		
tac	gta	ctc	att	gtc	cct	gag	gat	g	c	tac	ag	tc	aa				3936
Tyr	Val	Leu	Ile	Val	Pro	Glu	Asp	Ala	Tyr	Ser	Ser	Tyr	Leu	Gln			
1300								1305							1310		
gag	gag	cct	tt	g	ac	aaa	tcc	tat	gac	ttc	atc	agc	cac	tgt	gcc	ac	3984

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Glu	Glu	Leu	Asp	Lys	Ser	Tyr	Asp	Phe	Ile	Ser	His	Cys	Ala	Thr	
1315				1320							1325				
cag	ggc	tac	cac	att	agc	ccc	agc	agc	tca	tct	cca	ttc	tgc	cgg	aat
Gln	Gly	Tyr	His	Ile	Ser	Pro	Ser	Ser	Ser	Ser	Pro	Phe	Cys	Arg	Asn
1330				1335							1340				4032
gcc	gcc	acc	tcc	ttg	tct	ctc	ttc	tac	aac	aac	ggg	gcc	ctc	cct	tgt
Ala	Ala	Thr	Ser	Leu	Ser	Leu	Phe	Tyr	Asn	Asn	Gly	Ala	Leu	Pro	Cys
1345				1350							1355				1360
ggc	tgc	cac	gag	gtg	ggt	gcc	gta	agc	ccc	acg	tgc	gaa	ccc	ttc	ggg
Gly	Cys	His	Glu	Val	Gly	Ala	Val	Ser	Pro	Thr	Cys	Glu	Pro	Phe	Gly
				1365						1370				1375	
ggc	cag	tgt	ccc	tgc	cg	ggc	cac	gtt	att	ggc	cgt	gac	tgt	tcc	cgc
Gly	Gln	Cys	Pro	Cys	Arg	Gly	His	Val	Ile	Gly	Arg	Asp	Cys	Ser	Arg
				1380					1385				1390		
tgt	gcc	acc	ggc	tac	tgg	ggt	ttc	ccc	aac	tgc	agg	ccc	tgt	gac	tgt
Cys	Ala	Thr	Gly	Tyr	Trp	Gly	Phe	Pro	Asn	Cys	Arg	Pro	Cys	Asp	Cys
				1395					1400				1405		
gga	gcc	cgc	ctg	tgt	gac	gag	ctc	acg	ggc	cag	tgt	atc	tgt	cca	cca
Gly	Ala	Arg	Leu	Cys	Asp	Glu	Leu	Thr	Gly	Gln	Cys	Ile	Cys	Pro	Pro
				1410				1415				1420			
cgc	act	gtt	ccc	cct	gac	tgc	ttg	gtc	tgc	cag	cca	cag	agc	ttt	ggt
Arg	Thr	Val	Pro	Pro	Asp	Cys	Ieu	Val	Cys	Gln	Pro	Gln	Ser	Phe	Gly
				1425				1430				1435			1440
tgc	cac	ccc	ttg	gtg	ggc	tgt	gag	gag	tgt	aac	tgc	tca	ggg	ccc	ggc
Cys	His	Pro	Leu	Val	Gly	Cys	Glu	Glu	Cys	Asn	Cys	Ser	Gly	Pro	Gly
				1445					1450				1455		
gtc	cag	gag	ctg	acg	gac	cct	acc	tgt	gac	atg	gac	agc	ggc	cag	tgc
Val	Gln	Glu	Leu	Thr	Asp	Pro	Thr	Cys	Asp	Met	Asp	Ser	Gly	Gln	Cys
				1460				1465				1470			
aga	tgc	aga	ccc	aat	gta	gct	gga	cgt	cgc	tgt	gat	acc	tgt	gcc	ccg
Arg	Cys	Arg	Pro	Asn	Val	Ala	Gly	Arg	Arg	Cys	Asp	Thr	Cys	Ala	Pro
				1475				1480				1485			
ggc	ttc	tat	ggc	tat	cct	agc	tgt	cgc	ccc	tgt	gac	tgc	cat	gag	gca
Gly	Phe	Tyr	Gly	Tyr	Pro	Ser	Cys	Arg	Pro	Cys	Asp	Cys	His	Glu	Ala
				1490				1495				1500			
ggc	acc	atg	gct	agc	gtg	tgt	gac	ccc	ctc	aca	ggc	caa	tgc	cat	tgc
Gly	Thr	Met	Ala	Ser	Val	Cys	Asp	Pro	Leu	Thr	Gly	Gln	Cys	His	Cys
				1505				1510				1515			1520
aag	gag	aac	gtg	cag	ggc	tca	aga	tgt	gac	cag	tgt	cgc	gtg	ggg	acc
Lys	Glu	Asn	Val	Gln	Gly	Ser	Arg	Cys	Asp	Gln	Cys	Arg	Val	Gly	Thr
				1525					1530				1535		
ttc	tcc	ttg	gat	gct	aac	ccc	aag	ggc	tgt	acc	cgc	tgc	ttc	tgt	
Phe	Ser	Leu	Asp	Ala	Ala	Asn	Pro	Lys	Gly	Cys	Thr	Arg	Cys	Phe	Cys
				1540				1545				1550			
ttc	ggg	gcc	aca	gag	cgc	tgt	ggg	aac	tct	aac	ctc	gcc	cgc	cat	gag
Phe	Gly	Ala	Thr	Glu	Arg	Cys	Gly	Asn	Ser	Asn	Leu	Ala	Arg	His	Glu

4000 3999 3998 3997 3996 3995 3994 3993 3992 3991 3990

1555	1560	1565	
ttc gtg gac atg gag ggc tgg gtg ctg ttg agc agt gac cgg cag gtg Phe Val Asp Met Glu Gly Trp Val Leu Leu Ser Ser Asp Arg Gln Val 1570 1575 1580			4752
gta ccc cac gag cat cgg cct gag ata gag ctg ctg cac gca gat ctg Val Pro His Glu His Arg Pro Glu Ile Glu Leu Leu His Ala Asp Leu 1585 1590 1595 1600			4800
cgc tct gtg gct gac act ttc tca gag ctg tac tgg cag gct ccc ccc Arg Ser Val Ala Asp Thr Phe Ser Glu Leu Tyr Trp Gln Ala Pro Pro 1605 1610 1615			4848
tcc tat ctg gga gac agg gtg tca tcc tac ggt gga acc ctc cac tat Ser Tyr Leu Gly Asp Arg Val Ser Ser Tyr Gly Gly Thr Leu His Tyr 1620 1625 1630			4896
gag ctg cac tca gag acc cag cga ggt gat atc ttc att ccc tac gag Glu Leu His Ser Glu Thr Gln Arg Gly Asp Ile Phe Ile Pro Tyr Glu 1635 1640 1645			4944
agc cgg ccg gac gtc gtg ctg cag ggc aac caa atg agc atc gcc ttc Ser Arg Pro Asp Val Val Leu Gln Gly Asn Gln Met Ser Ile Ala Phe 1650 1655 1660			4992
ctg gaa ctg gcg tac cct ccc ccc ccc ccc ccc ccc ccc ccc ccc ccc Leu Glu Leu Ala Tyr Pro Pro Gly Gln Val His Arg Gly Gln Leu 1665 1670 1675 1680			5040
cag ctg gta gag ggg aac ttc cgg cac ttg gag act cac aac ccc gtc Gln Leu Val Glu Gly Asn Phe Arg His Leu Glu Thr His Asn Pro Val 1685 1690 1695			5088
tcc cga gaa gaa ctc atg atg gtg ctg gcc ggc ctg gag cag ctg cag Ser Arg Glu Glu Leu Met Met Val Leu Ala Gly Leu Glu Gln Leu Gln 1700 1705 1710			5136
atc cgt gct ctc ttc tcg cag acc tct tcc agt gtc tcc ttg cgt aga Ile Arg Ala Leu Phe Ser Gln Thr Ser Ser Val Ser Leu Arg Arg 1715 1720 1725			5184
gtg gta ctg gag gtg gct agc gag gct ggt agg ggg cct cca gcc agc Val Val Leu Glu Val Ala Ser Glu Ala Gly Arg Gly Pro Pro Ala Ser 1730 1735 1740			5232
aat gtg gaa ctg tgt atg tgc cct gcc aac tac cgt ggg gac tcg tgc Asn Val Glu Leu Cys Met Cys Pro Ala Asn Tyr Arg Gly Asp Ser Cys 1745 1750 1755 1760			5280
cag gaa tgt gcc cct ggc tat tac cgg gac acc aag ggt ctc ttc cta Gln Glu Cys Ala Pro Gly Tyr Tyr Arg Asp Thr Lys Gly Leu Phe Leu 1765 1770 1775			5328
ggc cga tgt gtc ccc tgt cag tgc cat ggc cat tca gat cgc tgc ctt Gly Arg Cys Val Pro Cys Gln Cys His Gly His Ser Asp Arg Cys Leu 1780 1785 1790			5376
cct ggc tct ggc att tgt gtg ggc tgc cag cac aac aca gaa ggg gac Pro Gly Ser Gly Ile Cys Val Gly Cys Gln His Asn Thr Glu Gly Asp 1795 1800 1805			5424

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caa tgt gag cgc tgt agg cct ggc ttt gtc agc agt gat ccc agt aac Gln Cys Glu Arg Cys Arg Pro Gly Phe Val Ser Ser Asp Pro Ser Asn 1810 1815 1820	5472
cct gca tcc cca tgt gtg agc tgc cct tgc ccc ttg gca gtg ccc tcc Pro Ala Ser Pro Cys Val Ser Cys Pro Cys Pro Leu Ala Val Pro Ser 1825 1830 1835 1840	5520
aat aat ttt gca gac ggt tgc gtc tta aga aat ggc cga acc cag tgc Asn Asn Phe Ala Asp Gly Cys Val Leu Arg Asn Gly Arg Thr Gln Cys 1845 1850 1855	5568
ctc tgc agg cca ggc tat gct ggt gcc tcc tgc gag cgg tgt gca cct Leu Cys Arg Pro Gly Tyr Ala Gly Ala Ser Cys Glu Arg Cys Ala Pro 1860 1865 1870	5616
ggc ttt ttt ggg aac ccc ctg gtg cta ggc agc tcc tgt cag ccc tgc Gly Phe Phe Gly Asn Pro Leu Val Leu Gly Ser Ser Cys Gln Pro Cys 1875 1880 1885	5664
gac tgc agc ggt aat gga gac ccc aac atg atc ttc agt gac tgc gac Asp Cys Ser Gly Asn Gly Asp Pro Asn Met Ile Phe Ser Asp Cys Asp 1890 1895 1900	5712
ccc ctg acg ggt gcc tgt cga ggc tgc ctc cgt cac acc act ggg ccc Pro Leu Thr Gly Ala Cys Arg Gly Cys Leu Arg His Thr Thr Gly Pro 1905 1910 1915 1920	5760
cac tgt gaa cgc tgt gcc cca ggc ttc tat ggc aat gct ttg ttg cca His Cys Glu Arg Cys Ala Pro Gly Phe Tyr Gly Asn Ala Leu Leu Pro 1925 1930 1935	5808
ggc aac tgc acc cgg tgt gac tgt tcc cca tgt ggg aca gaa acc tgt Gly Asn Cys Thr Arg Cys Asp Cys Ser Pro Cys Gly Thr Glu Thr Cys 1940 1945 1950	5856
gat ccc cag agt gga cgc tgc ctg tgc aaa gca ggc gtg act gga caa Asp Pro Gln Ser Gly Arg Cys Leu Cys Lys Ala Gly Val Thr Gly Gln 1955 1960 1965	5904
cgt tgt gac cgc tgt ttg gaa gga tac ttc ggt ttt gag caa tgc cag Arg Cys Asp Arg Cys Leu Glu Gly Tyr Phe Gly Glu Gln Cys Gln 1970 1975 1980	5952
ggc tgc cgc cct tgt gcc cca gct gcc aag ggc tcc gag tgc Gly Cys Arg Pro Cys Ala Cys Gly Pro Ala Ala Lys Gly Ser Glu Cys 1985 1990 1995 2000	6000
cac cct cag agc ggt cag tgt cac tgc cag cca ggg acc aca gga ccc His Pro Gln Ser Gly Gln Cys His Cys Gln Pro Gly Thr Thr Gly Pro 2005 2010 2015	6048
cag tgc ctc gag tgc gcc cct ggc tac tgg ggc ctc cca gag aag ggc Gln Cys Leu Glu Cys Ala Pro Gly Tyr Trp Gly Leu Pro Glu Lys Gly 2020 2025 2030	6096
tgc agg cgc tgc cag tgt ccc cga ggc cac tgt gac cca cac acg ggc Cys Arg Arg Cys Gln Cys Pro Arg Gly His Cys Asp Pro His Thr Gly 2035 2040 2045	6144

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cac tgc acc tgt ccc ccg ggg ctc agc ggg gaa cgc tgt gac acc tgc His Cys Thr Cys Pro Pro Gly Leu Ser Gly Glu Arg Cys Asp Thr Cys 2050 2055 2060	6192
agc cag cag cac cag gtg cct gta ccg ggc aag cct ggg ggc cat ggc Ser Gln Gln His Gln Val Pro Val Pro Gly Lys Pro Gly Gly His Gly 2065 2070 2075 2080	6240
ata cac tgt gaa gtg tgt gac cac tgt gtg gtt ctc ctt ctg gat gac Ile His Cys Glu Val Cys Asp His Cys Val Val Leu Leu Asp Asp 2085 2090 2095	6288
ctc gag cgg gct ggt gcc ctc ctc ccc gct atc cgt gag cag ctg cag Leu Glu Arg Ala Gly Ala Leu Leu Pro Ala Ile Arg Glu Gln Leu Gln 2100 2105 2110	6336
ggt atc aat gcc agc tcc gcg gcc tgg gcc agg ctg cac agg ctg aat Gly Ile Asn Ala Ser Ser Ala Ala Trp Ala Arg Leu His Arg Leu Asn 2115 2120 2125	6384
gcc tcc att gct gac ctg cag agt aaa ctc cgg agg cca ccc gga ccc Ala Ser Ile Ala Asp Leu Gln Ser Lys Leu Arg Arg Pro Pro Gly Pro 2130 2135 2140	6432
cgc tac cag gca gca cag cag cta cag act cta gag cag cag agt ata Arg Tyr Gln Ala Ala Gln Gln Leu Gln Thr Leu Glu Gln Gln Ser Ile 2145 2150 2155 2160	6480
agc ctt caa cag gac acg gag agg ctg ggc agt cag gcc aca ggg gtc Ser Leu Gln Gln Asp Thr Glu Arg Leu Gly Ser Gln Ala Thr Gly Val 2165 2170 2175	6528
caa ggt cag gca ggc cag cta ctg gac acc aca gag tcc aca ctg ggc Gln Gly Gln Ala Gly Gln Leu Leu Asp Thr Thr Glu Ser Thr Leu Gly 2180 2185 2190	6576
cgg gca cag aag ttg ttg gag tct gtg cga gct gtg ggc cgt gcc ctg Arg Ala Gln Lys Leu Leu Glu Ser Val Arg Ala Val Gly Arg Ala Leu 2195 2200 2205	6624
aat gag ctg gca tct cgc atg ggc caa gga tct cca ggc gat gcc ttg Asn Glu Leu Ala Ser Arg Met Gly Gln Gly Ser Pro Gly Asp Ala Leu 2210 2215 2220	6672
gta ccg tct ggc gag cag ctg cgc tgg gct ctg gct gaa gtg gag cgg Val Pro Ser Gly Glu Gln Leu Arg Trp Ala Leu Ala Glu Val Glu Arg 2225 2230 2235 2240	6720
ctg ctc tgg gat atg cgg acg cgt gac ctg ggg gcc cag ggg gca gtg Leu Leu Trp Asp Met Arg Thr Arg Asp Leu Gly Ala Gln Gly Ala Val 2245 2250 2255	6768
gca gag gcc gaa ctg gcc gaa gcc cag agg ctg atg gct cgt gtc cag Ala Glu Ala Glu Leu Ala Glu Ala Gln Arg Leu Met Ala Arg Val Gln 2260 2265 2270	6816
gag cag ctg acc agc ttc tgg gag gag aac cag tca ttg gcc aca cac Glu Gln Leu Thr Ser Phe Trp Glu Glu Asn Gln Ser Leu Ala Thr His 2275 2280 2285	6864
att cggtt gac cag ctg gct cag tat gag tct ggc ctc atg gat ctt cgt	6912

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Ile Arg Asp Gln Leu Ala Gln Tyr Glu Ser Gly Leu Met Asp Leu Arg				
2290	2295	2300		
gag gcc ctg aac cag gcc gtt aat acc acc cgg gag gct gag gaa ctc				6960
Glu Ala Leu Asn Gln Ala Val Asn Thr Thr Arg Glu Ala Glu Glu Leu				
2305	2310	2315	2320	
aac agc cgc aac cag gaa cgg gtg aag gaa gcc ctg caa tgg aaa cag				7008
Asn Ser Arg Asn Gln Glu Arg Val Lys Glu Ala Leu Gln Trp Lys Gln				
2325	2330	2335		
gaa ctg tcc cag gac aat gcc acc ctg aag gcc act ctt caa gct gcc				7056
Glu Leu Ser Gln Asp Asn Ala Thr Leu Lys Ala Thr Leu Gln Ala Ala				
2340	2345	2350		
agt ctc atc ttg ggc cat gtt tct gag ctt ctg cag ggc ata gac cag				7104
Ser Leu Ile Leu Gly His Val Ser Glu Leu Leu Gln Gly Ile Asp Gln				
2355	2360	2365		
gct aag gag gac cta gag cac ctg gcg gcc agc ctg gat gga gcc tgg				7152
Ala Lys Glu Asp Leu Glu His Leu Ala Ala Ser Leu Asp Gly Ala Trp				
2370	2375	2380		
aca ccc tta ctg aag agg atg cag gcc ttt tcc cct gcc agc agc aag				7200
Thr Pro Leu Leu Lys Arg Met Gln Ala Phe Ser Pro Ala Ser Ser Lys				
2385	2390	2395	2400	
gtg gac ttg gta gag gct gat ggc cac gct cag aag ctg aac cag				7248
Val Asp Leu Val Glu Ala Ala His Ala Gln Lys Leu Asn Gln				
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ctg gca atc aac ctg tct ggc atc atc ctt ggc atc aat cag gac cgc				7296
Ile Ala Ile Asn Leu Ser Gly Ile Ile Leu Gly Ile Asn Gln Asp Arg				
2420	2425	2430		
ttc atc cag agg gct gtg gaa gcc tcc aat gcc tac agc agc atc ctt				7344
Phe Ile Gln Arg Ala Val Glu Ala Ser Asn Ala Tyr Ser Ser Ile Leu				
2435	2440	2445		
cag gcc gtt cag gct gcc gag gat gcg gca ggc cag gca ctg agg cag				7392
Gln Ala Val Gln Ala Ala Glu Asp Ala Ala Gly Gln Ala Leu Arg Gln				
2450	2455	2460		
gcc agc cgc aca tgg gag atg gtg gtg cag cgg ggc cta gca gct gga				7440
Ala Ser Arg Thr Trp Glu Met Val Val Gln Arg Gly Leu Ala Ala Gly				
2465	2470	2475	2480	
gcc cgg cag ctg tta gcc aac agc agt gcc ctg gag gag acc atc ctt				7488
Ala Arg Gln Leu Leu Ala Asn Ser Ser Ala Leu Glu Glu Thr Ile Leu				
2485	2490	2495		
gga cac cag ggg agg ctg ggc ctt gct cag ggc cgt ctg cag gct gcg				7536
Gly His Gln Gly Arg Leu Gly Leu Ala Gln Gly Arg Leu Gln Ala Ala				
2500	2505	2510		
ggg atc cag ctt cat aat gtc tgg gcc agg aag aac cag cta gca gcc				7584
Gly Ile Gln Leu His Asn Val Trp Ala Arg Lys Asn Gln Leu Ala Ala				
2515	2520	2525		
cag atc cag gag gca caa gcc atg ctg gcc atg gac acg agc gag acc				7632
Gln Ile Gln Glu Ala Gln Ala Met Leu Ala Met Asp Thr Ser Glu Thr				

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2530	2535	2540	
agt gag aag att gct cac gcc aag gct gtg gct gcc gaa gcc ctc agt Ser Glu Lys Ile Ala His Ala Lys Ala Val Ala Ala Glu Ala Leu Ser	2545	2550	7680
2555	2560		
acg gcc acc cac gtg cag tct cag ctt cag ggt atg cag aag aat gtg Thr Ala Thr His Val Gln Ser Gln Leu Gln Gly Met Gln Lys Asn Val	2565	2570	7728
2575			
gag agg tgg cag agc cag ctg gga ggc ctg caa ggc cag gac ctg agc Glu Arg Trp Gln Ser Gln Leu Gly Leu Gln Gly Gln Asp Leu Ser	2580	2585	7776
2590			
cag gtg gaa cgg gat gca agc agt tca gtg tcc acc ctg gag aag aca Gln Val Glu Arg Asp Ala Ser Ser Ser Val Ser Thr Leu Glu Lys Thr	2595	2600	7824
2605			
ttg cca cag ctg ctg gcc aaa ctg agc cgt cta gag aac cgt gga gtt Leu Pro Gln Leu Leu Ala Lys Leu Ser Arg Leu Glu Asn Arg Gly Val	2610	2615	7872
2620			
cac aat gcc agc ctg gct ttg tct gcc aac att ggt cgt gtg cgc aag His Asn Ala Ser Leu Ala Leu Ser Ala Asn Ile Gly Arg Val Arg Lys	2625	2630	7920
2635	2640		
ctc att gcc caa gcc cgg agt gcc gcc agc aag gtc aag gtg tcc atg Leu Ile Ala Gln Ala Arg Ser Ala Ala Ser Lys Val Lys Val Ser Met	2645	2650	7968
2655			
aag ttc aat ggg cgt tca ggg gta cga ctg cgt ccc cca cga gac ctt Lys Phe Asn Gly Arg Ser Gly Val Arg Leu Arg Pro Pro Arg Asp Leu	2660	2665	8016
2670			
gcc gac ctt gct gcg tac act gcc ctc aag ttc cac atc cag agc cca Ala Asp Leu Ala Ala Tyr Thr Ala Leu Lys Phe His Ile Gln Ser Pro	2675	2680	8064
2685			
gtg cca gcg ccc gaa cct ggc aag aac acg ggg gac cac ttt gtt ctg Val Pro Ala Pro Glu Pro Gly Lys Asn Thr Gly Asp His Phe Val Leu	2690	2695	8112
2700			
tac atg ggc agc cgc cag gcc act ggg gac tac atg gga gtg tct ctg Tyr Met Gly Ser Arg Gln Ala Thr Gly Asp Tyr Met Gly Val Ser Leu	2705	2710	8160
2715	2720		
cgt aat cag aag gtg cac tgg gtg tac agg cta gga aag gct ggc ccc Arg Asn Gln Lys Val His Trp Val Tyr Arg Leu Gly Lys Ala Gly Pro	2725	2730	8208
2735			
aca act ctc agc atc gac gag aac atc ggg gag cag ttt gca gcc gtc Thr Thr Leu Ser Ile Asp Glu Asn Ile Gly Glu Gln Phe Ala Ala Val	2740	2745	8256
2750			
agc atc gac agg acc ctc cag ttt ggc cac atg tct gtc acc gtg gag Ser Ile Asp Arg Thr Leu Gln Phe Gly His Met Ser Val Thr Val Glu	2755	2760	8304
2765			
aaa cag atg gtt cat gag atc aag gga gac acg gtg gcc cct ggg agc Lys Gln Met Val His Glu Ile Lys Gly Asp Thr Val Ala Pro Gly Ser	2770	2775	8352
2780			

gag gga cta ctc aac ctg cat cct gac gat ttt gtc ttc tac gtg gga Glu Gly Leu Leu Asn Leu His Pro Asp Asp Phe Val Phe Tyr Val Gly	2785	2790	2795	2800	8400
gga tac ccc agc aac ttc acg ccc cct gaa ccc ctc cga ttc cct ggc Gly Tyr Pro Ser Asn Phe Thr Pro Pro Glu Pro Leu Arg Phe Pro Gly	2805	2810		2815	8448
tac ctg ggc tgc att gag atg gaa aca ctg aat gag gag gtg gtc agc Tyr Leu Gly Cys Ile Glu Met Glu Thr Leu Asn Glu Glu Val Val Ser	2820	2825		2830	8496
ctc tac aat ttt gag cag acc ttc atg ctg gac acg gca gta gat aaa Leu Tyr Asn Phe Glu Gln Thr Phe Met Leu Asp Thr Ala Val Asp Lys	2835	2840		2845	8544
cct tgt gct cgc tcc aag gcc acc ggt gac cca tgg ctc aca gat ggc Pro Cys Ala Arg Ser Lys Ala Thr Gly Asp Pro Trp Leu Thr Asp Gly	2850	2855		2860	8592
tcc tac ctg gat ggc agt ggc ttt gcc cgc atc agc ttt gag aag cag Ser Tyr Leu Asp Gly Ser Gly Phe Ala Arg Ile Ser Phe Glu Lys Gln	2865	2870	2875		8640
ttc agc aac aca aaa cgc ttt gac cag gag ctg cgg ctt gtg tcc tac Phe Ser Asn Thr Lys Arg Phe Asp Gln Glu Leu Arg Leu Val Ser Tyr	2885	2890		2895	8688
aat ggg atc atc ttt ttc ctc aag caa gag agc cag ttc ttg tgc ctg Asn Gly Ile Ile Phe Phe Leu Lys Gln Glu Ser Gln Phe Leu Cys Leu	2900	2905		2910	8736
gca gtg cag gaa ggc acc ctg gtg ctc ttc tat gac ttc ggc tct ggc Ala Val Gln Glu Gly Thr Leu Val Leu Phe Tyr Asp Phe Gly Ser Gly	2915	2920		2925	8784
ctg aag aag gcc gac cca ctg cag ccc cca caa gcc ttg acg gca gcc Leu Lys Lys Ala Asp Pro Leu Gln Pro Pro Gln Ala Leu Thr Ala Ala	2930	2935	2940		8832
agc aag gcg atc caa gtg ttt cta ttg gct ggc aat cgc aaa cgt gtg Ser Lys Ala Ile Gln Val Phe Leu Leu Ala Gly Asn Arg Lys Arg Val	2945	2950	2955	2960	8880
ttg gtg cgt gtg gag cgg gcc act gtg ttc agc gta gac cag gat aac Leu Val Arg Val Glu Arg Ala Thr Val Phe Ser Val Asp Gln Asp Asn	2965	2970		2975	8928
atg ctg gag atg gct gat gcc tac tac ttg gga ggd gtg cca cct gaa Met Leu Glu Met Ala Asp Ala Tyr Tyr Leu Gly Gly Val Pro Pro Glu	2980	2985		2990	8976
cag ctg ccc ttg agc cta cgg cag ctc ttc ccc tcc gga ggc tct gtc Gln Leu Pro Leu Ser Leu Arg Gln Leu Phe Pro Ser Gly Gly Ser Val	2995	3000		3005	9024
cgt ggy tgc atc aag ggt att aag gct ctg ggc aag tac gtg gac ctc Arg Gly Cys Ile Lys Gly Ile Lys Ala Leu Gly Lys Tyr Val Asp Leu	3010	3015	3020		9072

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Lys	Arg	Leu	Asn	Thr	Thr	Gly	Ile	Ser	Phe	Gly	Cys	Thr	Ala	Asp	Leu		
3025		3030							3035						3040		
cta	gtg	gga	cgc	acc	atg	act	ttt	cac	ggc	cac	ggc	ttc	ctg	ccc	ctg		9168
Leu	Val	Gly	Arg	Thr	Met	Thr	Phe	His	Gly	His	Gly	Phe	Leu	Pro	Leu		
					3045			3050				3055					
gca	ctt	cct	gat	gtg	gca	ccc	atc	acc	gaa	gtg	gtc	tat	tct	ggc	ttt		9216
Ala	Leu	Pro	Asp	Val	Ala	Pro	Ile	Thr	Glu	Val	Val	Tyr	Ser	Gly	Phe		
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ggc	ttt	cgt	ggc	acc	cag	gac	aac	aac	ctg	ctg	tat	tac	ctg	acc	tcc		9264
Gly	Phe	Arg	Gly	Thr	Gln	Asp	Asn	Asn	Leu	Leu	Tyr	Tyr	Arg	Thr	Ser		
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Pro	Asp	Gly	Pro	Tyr	Gln	Val	Ser	Leu	Arg	Glu	Gly	His	Val	Thr	Leu		
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cgt	ttt	atg	aac	caa	gag	gtg	gaa	act	caa	agg	gtc	ttt	gct	gat	ggt		9360
Arg	Phe	Met	Asn	Gln	Glu	Val	Glu	Thr	Gln	Arg	Val	Phe	Ala	Asp	Gly		
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gct	cct	cac	tat	gtt	gcc	ttc	tat	agc	aat	gtc	aca	ggg	gta	tgg	ctg		9408
Ala	Pro	His	Tyr	Val	Ala	Phe	Tyr	Ser	Asn	Val	Thr	Gly	Val	Trp	Leu		
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tat	gtg	gat	gac	cag	cta	caa	cta	gta	aag	tct	cat	gag	aga	aca	act		9456
Tyr	Val	Asp	Asp	Gln	Leu	Gln	Leu	Val	Lys	Ser	His	Glu	Arg	Thr	Thr		
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ccc	atg	ctc	caa	cta	cag	ccc	gag	gaa	ccc	tca	cgg	ctt	ctc	ctg	gga		9504
Pro	Met	Leu	Gln	Leu	Gln	Pro	Glu	Glu	Pro	Ser	Arg	Leu	Leu	Gly			
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Gly	Leu	Pro	Val	Ser	Gly	Thr	Phe	His	Asn	Phe	Ser	Gly	Cys	Ile	Ser		
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aat	gtt	ttt	gta	cag	cga	ctt	cg	gga	cca	cag	cgt	gtg	ttt	gac	cta		9600
Asn	Val	Phe	Val	Gln	Arg	Leu	Arg	Gly	Pro	Gln	Arg	Val	Phe	Asp	Leu		
					3185			3190			3195			3200			
cac	cag	aac	atg	ggg	agt	gtc	aat	gta	agc	gta	ggc	tgt	aca	cca	gcc		9648
His	Gln	Asn	Met	Gly	Ser	Val	Asn	Val	Ser	Val	Gly	Cys	Thr	Pro	Ala		
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caa	ctc	atc	gag	acc	tca	agg	gcc	acg	gct	cag	aag	gtt	tcc	cg	cgt		9696
Gln	Leu	Ile	Glu	Thr	Ser	Arg	Ala	Thr	Ala	Gln	Lys	Val	Ser	Arg	Arg		
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agt	cga	caa	ccc	agc	cag	gac	ctt	gcc	tgc	acg	aca	ccc	tgg	ctc	cct		9744
Ser	Arg	Gln	Pro	Ser	Gln	Asp	Leu	Ala	Cys	Thr	Thr	Pro	Trp	Leu	Pro		
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Gly	Thr	Ile	Gln	Asp	Ala	Tyr	Gln	Phe	Gly	Gly	Pro	Leu	Pro	Ser	Tyr		
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cta	cag	ttt	gtg	ggt	atc	tct	ccg	tcc	cac	agg	aat	agg	ctc	cac	ctc		9840

EQUSETUM SORCE

Leu Gln Phe Val Gly Ile Ser Pro Ser His Arg Asn Arg Leu His Leu			
3265	3270	3275	3280
tcc atg ctt gtc cgt cca cat gcg gct tcc cag ggc ctc ctg ctc tct			9888
Ser Met Leu Val Arg Pro His Ala Ala Ser Gln Gly Leu Leu Leu Ser			
3285	3290	3295	
aca gcc ccc atg tcg ggc cgc agc cct tcg ttg gta ctc ttt cta aac			9936
Thr Ala Pro Met Ser Gly Arg Ser Pro Ser Leu Val Leu Phe Leu Asn			
3300	3305	3310	
cat gga cac ttt gtc gca cag act gag ggc cct ggg ccc cgg ctc cag			9984
His Gly His Phe Val Ala Gln Thr Glu Gly Pro Gly Pro Arg Leu Gln			
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gtc cag agt cgc cag cac tca cgg gct ggc cag tgg cac agg gtg tcc			10032
Val Gln Ser Arg Gln His Ser Arg Ala Gly Gln Trp His Arg Val Ser			
3330	3335	3340	
gtc cgc tgg gga atg cag cag atc cag ctt gtg gtg gac ggc agc cag			10080
Val Arg Trp Gly Met Gln Gln Ile Gln Leu Val Val Asp Gly Ser Gln			
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acc tgg agc cag aag gct ctc cac cat cgg gtc ccc agg gca gag cga			10128
Thr Trp Ser Gln Lys Ala Leu His His Arg Val Pro Arg Ala Glu Arg			
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cca cag ccc tac acc ctc tct gta gga ggt ctt cct gcc agc agt tac			10176
Pro Gln Pro Tyr Thr Leu Ser Val Gly Gly Leu Pro Ala Ser Ser Tyr			
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Ser Ser Lys Leu Pro Val Ser Val Gly Phe Ser Gly Cys Leu Lys Lys			
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Leu Gln Leu Asp Lys Gln Pro Leu Arg Thr Pro Thr Gln Met Val Gly			
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Val Thr Pro Cys Val Ser Gly Pro Leu Glu Asp Gly Leu Phe Phe Pro			
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Gly Ser Glu Gly Val Val Thr Leu Glu Leu Pro Lys Ala Lys Met Pro			
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Tyr Val Ser Leu Glu Leu Glu Met Arg Pro Leu Ala Ala Gly Leu			
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Ile Phe His Leu Gly Gln Ala Leu Ala Thr Pro Tyr Met Gln Leu Lys			
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gtg ctg aca gaa cag gtc ctg ctg cag gca aat gat ggg gca ggg gag			10512
Val Leu Thr Glu Gln Val Leu Leu Gln Ala Asn Asp Gly Ala Gly Glu			
3490	3495	3500	
ttt tcc acg tgg gtg acc tac ccc aag ctt tgt gat gga cgg tgg cac			10560
Phe Ser Thr Trp Val Thr Tyr Pro Lys Leu Cys Asp Gly Arg Trp His			

3505	3510	3515	3520	
cga gtg gca gtg atc atg ggc agg gac aca ctc cgg ctg gag gta gac Arg Val Ala Val Ile Met Gly Arg Asp Thr Leu Arg Leu Glu Val Asp				10608
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3540		3545	3550	
tct cca gca ctt ctg cac ctc ggg agc ctg ccc aag tct tca act gct Ser Pro Ala Leu Leu His Leu Gly Ser Leu Pro Lys Ser Ser Thr Ala				10704
3555		3560	3565	
cg ^g cca gag ctc cct gcc tac cga gga tgc ttg agg aag ctg ctg atc Arg Pro Glu Leu Pro Ala Tyr Arg Gly Cys Leu Arg Lys Leu Leu Ile				10752
3570		3575	3580	
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3585		3590	3595	3600
gtg ggg atg cgc gga tgc ccc tca gga acc cta gca ctt tcc aag cag Val Gly Met Arg Gly Cys Pro Ser Gly Thr Leu Ala Leu Ser Lys Gln				10848
3605		3610		3615
gga aag gca ctg acc cag agg cac gcc aag ccc agt gtc tcc ccg cta Gly Lys Ala Leu Thr Gln Arg His Ala Lys Pro Ser Val Ser Pro Leu				10896
3620		3625		3630
ctt tgg cat tgagggttcc cagacccttgg gg ^{tttgccta} cactttctat				10945
Leu Trp His				
3635				
gaataacaag tcatttctgg tttacactgt ct ^{ttttagagg} aaaaggactc tgtagaacag				11005
atat				11009
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<212> PRT				
<213> Mus musculus				
<400> 4				
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Asn Gln Thr Ile Gln Gly Gln Tyr Cys Asp Ile Cys Thr Ala Ala Asn				
20		25		30
Ser Asn Lys Ala His Pro Val Ser Asn Ala Ile Asp Gly Thr Glu Arg				
35	40		45	
Trp Trp Gln Ser Pro Pro Leu Ser Arg Gly Leu Glu Tyr Asn Glu Val				
50	55		60	
Asn Val Thr Leu Asp Leu Gly Gln Val Phe His Val Ala Tyr Val Leu				
65	70	75		80
Ile Lys Phe Ala Asn Ser Pro Arg Pro Asp Leu Trp Val Leu Glu Arg				

85	90	95
Ser Thr Asp Phe Gly His Thr Tyr Gln Pro Trp Gln Phe Phe Ala Ser		
100	105	110
Ser Lys Arg Asp Cys Leu Glu Arg Phe Gly Pro Arg Thr Leu Glu Arg		
115	120	125
Ile Thr Gln Asp Asp Asp Val Ile Cys Thr Thr Glu Tyr Ser Arg Ile		
130	135	140
Val Pro Leu Glu Asn Gly Glu Ile Val Val Ser Leu Val Asn Gly Arg		
145	150	155
Pro Gly Ala Leu Asn Phe Ser Tyr Ser Pro Leu Leu Arg Asp Phe Thr		
165	170	175
Lys Ala Thr Asn Ile Arg Leu Arg Phe Leu Arg Thr Asn Thr Leu Leu		
180	185	190
Gly His Leu Met Gly Lys Ala Leu Arg Asp Pro Thr Val Thr Arg Arg		
195	200	205
Tyr Tyr Tyr Ser Ile Lys Asp Ile Ser Ile Gly Gly Arg Cys Val Cys		
210	215	220
His Gly His Ala Asp Val Cys Asp Ala Lys Asp Pro Leu Asp Pro Phe		
225	230	235
Arg Leu Gln Cys Ala Cys Gln His Asn Thr Cys Gly Gly Ser Cys Asp		
245	250	255
Arg Cys Cys Pro Gly Phe Asn Gln Gln Pro Trp Lys Pro Ala Thr Thr		
260	265	270
Asp Ser Ala Asn Glu Cys Gln Ser Cys Asn Cys His Gly His Ala Tyr		
275	280	285
Asp Cys Tyr Tyr Asp Pro Glu Val Asp Arg Arg Asn Ala Ser Gln Asn		
290	295	300
Gln Asp Asn Val Tyr Gln Gly Gly Val Cys Leu Asp Cys Gln His		
305	310	315
320		
His Thr Thr Gly Ile Asn Cys Glu Arg Cys Leu Pro Gly Phe Phe Arg		
325	330	335
Ala Pro Asp Gln Pro Leu Asp Ser Pro His Val Cys Arg Pro Cys Asp		
340	345	350
Cys Glu Ser Asp Phe Thr Asp Gly Thr Cys Glu Asp Leu Thr Gly Arg		
355	360	365
Cys Tyr Cys Arg Pro Asn Phe Thr Gly Glu Leu Cys Ala Ala Cys Ala		
370	375	380
Glu Gly Tyr Thr Asp Phe Pro His Cys Tyr Pro Leu Pro Ser Phe Pro		
385	390	395
400		
His Asn Asp Thr Arg Glu Gln Val Leu Pro Ala Gly Gln Ile Val Asn		
405	410	415

Cys Asp Cys Asn Ala Ala Gly Thr Gln Gly Asn Ala Cys Arg Lys Asp
 420 425 430
 Pro Arg Leu Gly Arg Cys Val Cys Lys Pro Asn Phe Arg Gly Ala His
 435 440 445
 Cys Glu Leu Cys Ala Pro Gly Phe His Gly Pro Ser Cys His Pro Cys
 450 455 460
 Gln Cys Ser Ser Pro Gly Val Ala Asn Ser Leu Cys Asp Pro Glu Ser
 465 470 475 480
 Gly Gln Cys Met Cys Arg Thr Gly Phe Glu Gly Asp Arg Cys Asp His
 485 490 495
 Cys Ala Leu Gly Tyr Phe His Phe Pro Leu Cys Gln Leu Cys Gly Cys
 500 505 510
 Ser Pro Ala Gly Thr Leu Pro Glu Gly Cys Asp Glu Ala Gly Arg Cys
 515 520 525
 Gln Cys Arg Pro Gly Phe Asp Gly Pro His Cys Asp Arg Cys Leu Pro
 530 535 540
 Gly Tyr His Gly Tyr Pro Asp Cys His Ala Cys Ala Cys Asp Pro Arg
 545 550 555 560
 Gly Ala Leu Asp Gln Gln Cys Gly Val Gly Gly Leu Cys His Cys Arg
 565 570 575
 Pro Gly Asn Thr Gly Ala Thr Cys Gln Glu Cys Ser Pro Gly Phe Tyr
 580 585 590
 Gly Phe Pro Ser Cys Ile Pro Cys His Cys Ser Ala Asp Gly Ser Leu
 595 600 605
 His Thr Thr Cys Asp Pro Thr Thr Gly Gln Cys Arg Cys Arg Pro Arg
 610 615 620
 Val Thr Gly Leu His Cys Asp Met Cys Val Pro Gly Ala Tyr Asn Phe
 625 630 635 640
 Pro Tyr Cys Glu Ala Gly Ser Cys His Pro Ala Gly Leu Ala Pro Ala
 645 650 655
 Asn Pro Ala Leu Pro Glu Thr Gln Ala Pro Cys Met Cys Arg Ala His
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 Val Glu Gly Pro Ser Cys Asp Arg Cys Lys Pro Gly Tyr Trp Gly Leu
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 770 775 780
 Ala Lys Asp His Tyr Leu Pro Asp Leu His His Met Arg Leu Glu Leu
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 Pro Ala Phe Val Thr Val Pro Gln Arg Gly Phe Gly Glu Pro Phe Val
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Pro Ile Ile Leu Lys Asp Cys Gln Val Leu Pro Leu Pro Pro Asp Leu
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Pro Ser Phe Pro Val Glu Val Leu Ile Asn Gly Arg Ile Trp Gln
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Leu Thr Val Thr Val Arg Val Pro Glu Gly Arg Trp Leu Trp Leu Asp
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Tyr Val Leu Ile Val Pro Glu Asp Ala Tyr Ser Ser Tyr Leu Gln
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Gln Gly Tyr His Ile Ser Pro Ser Ser Ser Pro Phe Cys Arg Asn
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 His Cys Glu Arg Cys Ala Pro Gly Phe Tyr Gly Asn Ala Leu Leu Pro
 1925 1930 1935
 Gly Asn Cys Thr Arg Cys Asp Cys Ser Pro Cys Gly Thr Glu Thr Cys
 1940 1945 1950
 Asp Pro Gln Ser Gly Arg Cys Leu Cys Lys Ala Gly Val Thr Gly Gln
 1955 1960 1965
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 1970 1975 1980
 Gly Cys Arg Pro Cys Ala Cys Gly Pro Ala Ala Lys Gly Ser Glu Cys
 1985 1990 1995 2000
 His Pro Gln Ser Gly Gln Cys His Cys Gln Pro Gly Thr Thr Gly Pro
 2005 2010 2015
 Gln Cys Leu Glu Cys Ala Pro Gly Tyr Trp Gly Leu Pro Glu Lys Gly
 2020 2025 2030
 Cys Arg Arg Cys Gln Cys Pro Arg Gly His Cys Asp Pro His Thr Gly

PDB ID: 1J2E

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Ile His Cys Glu Val Cys Asp His Cys Val Val Leu Leu Leu Asp Asp			
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Leu Glu Arg Ala Gly Ala Leu Leu Pro Ala Ile Arg Glu Gln Leu Gln			
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Ser Leu Gln Gln Asp Thr Glu Arg Leu Gly Ser Gln Ala Thr Gly Val			
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Met Gly Leu Leu Gln Leu Leu Ala Phe Ser Phe Leu Ala Leu Cys Arg
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Ala Arg Val Arg Ala Gln Glu Pro Glu Phe Ser Tyr Gly Cys Ala Glu
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Gly Ser Cys Tyr Pro Ala Thr Gly Asp Leu Leu Ile Gly Arg Ala Gln
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Lys Leu Ser Val Thr Ser Thr Cys Gly Leu His Lys Pro Glu Pro Tyr
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Cys Ile Val Ser His Leu Gln Glu Asp Lys Lys Cys Phe Ile Cys Asn
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Ser Gln Asp Pro Tyr His Glu Thr Leu Asn Pro Asp Ser His Leu Ile
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Gln Asn Leu Leu Lys Ile Thr Asn Leu Arg Ile Lys Phe Val Lys Leu			
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Lys Tyr Tyr Ala Val Tyr Asp Met Val Val Arg Gly Asn Cys Phe			
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Glu Val Glu Gly Met Val His Gly His Cys Met Cys Arg His Asn Thr			
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Lys Gly Leu Asn Cys Glu Leu Cys Met Asp Phe Tyr His Asp Leu Pro			
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Pro Glu Arg Asp Ile Arg Asp Pro Asn Phe Cys Glu Arg Cys Thr Cys			
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Asp Pro Ala Gly Ser Gln Asn Glu Gly Ile Cys Asp Ser Tyr Thr Asp			
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425

430

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gaa ggg gct tat ttg gag ttt ttc att gac aac ata cca tat tcc atg Glu Gly Ala Tyr Leu Glu Phe Phe Ile Asp Asn Ile Pro Tyr Ser Met 595 600 605		1941
gag tac gac atc cta att cgc tac gag cca cag cta ccc gac cac tgg Glu Tyr Asp Ile Leu Ile Arg Tyr Glu Pro Gln Leu Pro Asp His Trp 610 615 620		1989
gaa aaa gct gtc atc aca gtg cag cga cct gga agg att cca acc agc Glu Lys Ala Val Ile Thr Val Gln Arg Pro Gly Arg Ile Pro Thr Ser 625 630 635 640		2037
agc cga tgt ggt aat acc atc ccc gat gat gac aac cag gtg gtg tca Ser Arg Cys Gly Asn Thr Ile Pro Asp Asp Asn Gln Val Val Ser 645 650 655		2085
tta tca cca ggc tca aga tat gtc gtc ctt cct cgg ccg gtg tgc ttt Leu Ser Pro Gly Ser Arg Tyr Val Val Leu Pro Arg Pro Val Val Cys Phe 660 665 670		2133

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tcc tct gat agc gac gtg gag agc ccc tac acg ctg atc gat tct ctt Ser Ser Asp Ser Asp Val Glu Ser Pro Tyr Thr Leu Ile Asp Ser Leu 690 695 700	2229
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10037422

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gag act ggg agg tgt ctc aag tgc ctg tac cac acg gaa ggg gaa cac Glu Thr Gly Arg Cys Leu Lys Cys Leu Tyr His Thr Glu Gly Glu His 995 1000 1005	3141
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A D C E S S I O N L I S T

Cys Val Glu Gly Val Glu Gly Pro Arg Cys Asp Lys Cys Thr Arg Gly			
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Tyr Ser Gly Val Phe Pro Asp Cys Thr Pro Cys His Gln Cys Phe Ala			
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ctc tgg gat gtg atc att gcc gag ctg acc aac agg aca cac aga ttc		3717	
Leu Trp Asp Val Ile Ile Ala Glu Leu Thr Asn Arg Thr His Arg Phe			
1185	1190	1195	1200
ctg gag aaa gcc aag gcc ttg aag atc agt ggt gtg atc ggg cct tac		3765	
Leu Glu Lys Ala Lys Ala Leu Lys Ile Ser Gly Val Ile Gly Pro Tyr			
1205	1210	1215	
cgt gag act gtg gac tcg gtg gag agg aaa gtc agc gag ata aaa gac		3813	
Arg Glu Thr Val Asp Ser Val Glu Arg Lys Val Ser Glu Ile Lys Asp			
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atc ctg gcg cag agc ccc gca gca gag cca ctg aaa aac att ggg aat		3861	
Ile Leu Ala Gln Ser Pro Ala Ala Glu Pro Leu Lys Asn Ile Gly Asn			
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ctc ttt gag gaa gca gag aaa ctg att aaa gat gtt aca gaa atg atg		3909	
Leu Phe Glu Glu Ala Glu Lys Leu Ile Lys Asp Val Thr Glu Met Met			
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aca gcc aaa gaa ctg gat tct cta cag aca gaa gcc gaa agc cta gac		4005	
Thr Ala Lys Glu Leu Asp Ser Leu Gln Thr Glu Ala Glu Ser Leu Asp			
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Leu Glu Ala Glu Glu Arg Val Asn Ala Ser Thr Thr Glu Pro Asn Ser			
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Thr Val Glu Gln Ser Ala Leu Met Arg Asp Arg Val Glu Asp Val Met			
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atg gag cga gaa tcc cag ttc aag gaa aaa caa gag gag cag gct cgc		4245	
Met Glu Arg Glu Ser Gln Phe Lys Glu Lys Gln Glu Glu Gln Ala Arg			
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Leu Leu Asp Glu Leu Ala Gly Lys Leu Gln Ser Leu Asp Leu Ser Ala			
1380	1385	1390	
gct gcc gaa atg acc tgt gga aca ccc cca ggg gcc tcc tgt tcc gag		4341	
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tgt ggg ggg cct ggc tgt ggt gtc gtt act gtt gca cac aac gcc Cys Gly Gly Pro Gly Cys Gly Leu Val Thr Val Ala His Asn Ala 1425	1430	1435	1440
tgg cag aaa gcc atg gac ttg gac caa gat gtc ctg agt gcc ctg gct Trp Gln Lys Ala Met Asp Leu Asp Gln Asp Val Leu Ser Ala Leu Ala 1445	1450	1455	4485
gaa gtg gaa cag ctc tcc aag atg gtc tct gaa gca aaa ctg agg gca Glu Val Glu Gln Leu Ser Lys Met Val Ser Glu Ala Lys Leu Arg Ala 1460	1465	1470	4533
gat gag gca aaa caa agt gct gaa gac att ctg ttg aag aca aat gct Asp Glu Ala Lys Gln Ser Ala Glu Asp Ile Leu Leu Lys Thr Asn Ala 1475	1480	1485	4581
acc aaa gaa aaa atg gac aag agc aat gag gag ctg aga aat cta atc Thr Lys Glu Lys Met Asp Lys Ser Asn Glu Glu Leu Arg Asn Leu Ile 1490	1495	1500	4629
aag caa atc aga aac ttt ttg acc cag gat agt gct gat ttg gac agc Lys Gln Ile Arg Asn Phe Leu Thr Gln Asp Ser Ala Asp Leu Asp Ser 1505	1510	1515	1520
att gaa gca gtt gct aat gaa gta ttg aaa atg gag atg cct agc acc Ile Glu Ala Val Ala Asn Glu Val Leu Lys Met Glu Met Pro Ser Thr 1525	1530	1535	4725
cca cag cag tta cag aac ttg aca gaa gat ata cgt gaa cga gtt gaa Pro Gln Gln Leu Gln Asn Leu Thr Glu Asp Ile Arg Glu Arg Val Glu 1540	1545	1550	4773
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Gly Ser Cys Tyr Pro Ala Thr Gly Asp Leu Leu Ile Gly Arg Ala Gln 35 40 45	
Lys Leu Ser Val Thr Ser Thr Cys Gly Leu His Lys Pro Glu Pro Tyr 50 55 60	
Cys Ile Val Ser His Leu Gln Glu Asp Lys Lys Cys Phe Ile Cys Asn	

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Ser Gln Asp Pro Tyr His Glu Thr Leu Asn Pro Asp Ser His Leu Ile			
85	90	95	
Glu Asn Val Val Thr Thr Phe Ala Pro Asn Arg Leu Lys Ile Trp Trp			
100	105	110	
Gln Ser Glu Asn Gly Val Glu Asn Val Thr Ile Gln Leu Asp Leu Glu			
115	120	125	
Ala Glu Phe His Phe Thr His Leu Ile Met Thr Phe Lys Thr Phe Arg			
130	135	140	
Pro Ala Ala Met Leu Ile Glu Arg Ser Ser Asp Phe Gly Lys Thr Trp			
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Gly Val Tyr Arg Tyr Phe Ala Tyr Asp Cys Glu Ala Ser Phe Pro Gly			
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Ile Ser Thr Gly Pro Met Lys Lys Val Asp Asp Ile Ile Cys Asp Ser			
180	185	190	
Arg Tyr Ser Asp Ile Glu Pro Ser Thr Glu Gly Glu Val Ile Phe Arg			
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Ala Leu Asp Pro Ala Phe Lys Ile Glu Asp Pro Tyr Ser Pro Arg Ile			
210	215	220	
Gln Asn Leu Leu Lys Ile Thr Asn Leu Arg Ile Lys Phe Val Lys Leu			
225	230	235	240
His Thr Leu Gly Asp Asn Leu Leu Asp Ser Arg Met Glu Ile Arg Glu			
245	250	255	
Lys Tyr Tyr Tyr Ala Val Tyr Asp Met Val Val Arg Gly Asn Cys Phe			
260	265	270	
Cys Tyr Gly His Ala Ser Glu Cys Ala Pro Val Asp Gly Phe Asn Glu			
275	280	285	
Glu Val Glu Gly Met Val His Gly His Cys Met Cys Arg His Asn Thr			
290	295	300	
Lys Gly Leu Asn Cys Glu Leu Cys Met Asp Phe Tyr His Asp Leu Pro			
305	310	315	320
Trp Arg Pro Ala Glu Gly Arg Asn Ser Asn Ala Cys Lys Lys Cys Asn			
325	330	335	
Cys Asn Glu His Ser Ile Ser Cys His Phe Asp Met Ala Val Tyr Leu			
340	345	350	
Ala Thr Gly Asn Val Ser Gly Gly Val Cys Asp Asp Cys Gln His Asn			
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Thr Met Gly Arg Asn Cys Glu Gln Cys Lys Pro Phe Tyr Tyr Gln His			
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Pro Glu Arg Asp Ile Arg Asp Pro Asn Phe Cys Glu Arg Cys Thr Cys			
385	390	395	400

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 Phe Ser Thr Gly Leu Ile Ala Gly Gln Cys Arg Cys Lys Leu Asn Val
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 Glu Gly Glu His Cys Asp Val Cys Lys Glu Gly Phe Tyr Asp Leu Ser
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 Ser Glu Asp Pro Phe Gly Cys Lys Ser Cys Ala Cys Asn Pro Leu Gly
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 Thr Ile Pro Gly Gly Asn Pro Cys Asp Ser Glu Thr Gly His Cys Tyr
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 Cys Lys Arg Leu Val Thr Gly Gln His Cys Asp Gln Cys Leu Pro Glu
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 580 585 590

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 595 600 605

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 Glu Lys Ala Val Ile Thr Val Gln Arg Pro Gly Arg Ile Pro Thr Ser
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 645 650 655

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 Glu Lys Gly Thr Asn Tyr Thr Val Arg Leu Glu Leu Pro Gln Tyr Thr
 675 680 685

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 690 695 700

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 Arg Gln Cys Asp Arg Cys Leu Pro Gly His Trp Gly Phe Pro Ser Cys
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 885 890 895
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 900 905 910
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Arg Lys Tyr Glu Asp Asn Gln Arg Tyr Leu Glu Asp Lys Ala Gln Glu
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Val Glu Asn Val Thr Ile Gln Leu Asp Leu Glu Ala Glu Phe His Phe
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25

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Pro Asp Cys Thr Pro Cys His Gln Cys Phe Ala Leu Trp Asp Val Ile			
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Cys Asn Glu His Ser Ser Cys His Phe Asp Met Ala Val Phe Leu			
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Pro Glu Arg Asp Ile Arg Asp Pro Asn Leu Cys Glu Pro Cys Thr Cys			
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aag acc gtg aag gag ctg gca gaa cag ctg gag ttt atc aaa aac tcc			4113
Lys Thr Val Lys Glu Leu Ala Glu Gln Leu Glu Phe Ile Lys Asn Ser			
1300	1305	1310	
gat att cag ggc gcc ttg gat agc atc acc aag tat ttc cag atg tct			4161
Asp Ile Gln Gly Ala Leu Asp Ser Ile Thr Lys Tyr Phe Gln Met Ser			
1315	1320	1325	
ctt gag gca gag aag cgg gtg aat gcc tcc acc aca gac ccc aac agc			4209
Leu Glu Ala Glu Lys Arg Val Asn Ala Ser Thr Thr Asp Pro Asn Ser			
1330	1335	1340	
act gtg gag cag tct gcc ctc acg cga gac aga gta gaa gat ctg atg			4257
Thr Val Glu Gln Ser Ala Leu Thr Arg Asp Arg Val Glu Asp Leu Met			
1345	1350	1355	1360
ttg gag cga gag tct ccg ttc aag gag cag cag gag gaa cag gca cgc			4305
Leu Glu Arg Glu Ser Pro Phe Lys Glu Gln Gln Glu Glu Gln Ala Arg			
1365	1370	1375	
ctc ctg gac gaa ctg gcc ggc aaa ctg caa agt ctc gac ctg tcg gct			4353
Leu Leu Asp Glu Leu Ala Gly Lys Leu Gln Ser Leu Asp Leu Ser Ala			
1380	1385	1390	
gct gca cag atg acc tgt gga aca cct cca ggg gct gac tgt tct gaa			4401
Ala Ala Gln Met Thr Cys Gly Thr Pro Pro Gly Ala Asp Cys Ser Glu			
1395	1400	1405	
agt gaa tgt ggt ggc ccc aac tgc aga act gac gaa gga gag aag aag			4449
Ser Glu Cys Gly Pro Asn Cys Arg Thr Asp Glu Gly Glu Lys Lys			
1410	1415	1420	
tgt ggg ggg cct ggc tgt ggt ctg gtc act gtg gcc cac agt gct			4497
Cys Gly Gly Pro Gly Cys Gly Leu Val Thr Val Ala His Ser Ala			
1425	1430	1435	1440
tgg cag aaa gcc atg gat ttt gac cgt gat gtc ctg agt gcc ctg gct			4545
Trp Gln Lys Ala Met Asp Phe Asp Arg Asp Val Leu Ser Ala Leu Ala			
1445	1450	1455	
gaa gtc gaa cag ctc tcc aag atg gtc tct gaa gca aaa gtg aga gca			4593
Glu Val Glu Gln Leu Ser Lys Met Val Ser Glu Ala Lys Val Arg Ala			
1460	1465	1470	
gat gag gcg aag cag aat gcg cag gat gtc ctg tta aaa aca aat gct			4641
Asp Glu Ala Lys Gln Asn Ala Gln Asp Val Leu Lys Thr Asn Ala			
1475	1480	1485	
acc aaa gaa aaa gtg gac aag agc aac gag gac ctg cgg aac ctc atc			4689
Thr Lys Glu Lys Val Asp Lys Ser Asn Glu Asp Leu Arg Asn Leu Ile			
1490	1495	1500	
aag cag atc aga aac ttc ctg act gag gat agt gct gat cta gac agt			4737
Lys Gln Ile Arg Asn Phe Leu Thr Glu Asp Ser Ala Asp Leu Asp Ser			
1505	1510	1515	1520
att gaa gca gtt gct aat gaa gta ctg aaa agt gga aat gct agc acg			4785
Ile Glu Ala Val Ala Asn Glu Val Leu Lys Ser Gly Asn Ala Ser Thr			

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	1525	1530	1535	
cca cag cag tta cag aac cta aca gaa gac att cgg gag cga gtt gaa Pro Gln Gln Leu Gln Asn Leu Thr Glu Asp Ile Arg Glu Arg Val Glu	1540	1545	1550	4833
acc ctc tct caa gta gag gtt att ttg cag cag agt gca gct gac att Thr Leu Ser Gln Val Glu Val Ile Leu Gln Gln Ser Ala Ala Asp Ile	1555	1560	1565	4881
gcc aga gct gag ctg ttg ctt gag gaa gct aag aga gca agc aaa agt Ala Arg Ala Glu Leu Leu Glu Ala Lys Arg Ala Ser Lys Ser	1570	1575	1580	4929
gca aca gat gtt aaa gtc act gca gac atg gtg aag gaa gca tta gaa Ala Thr Asp Val Lys Val Thr Ala Asp Met Val Lys Glu Ala Leu Glu	1585	1590	1595	4977
gaa gca gaa aag gcc cag gtt gca gca gag aag gcg att aaa caa gct Glu Ala Glu Lys Ala Gln Val Ala Ala Glu Lys Ala Ile Lys Gln Ala	1605	1610	1615	5025
gat gag gat atc caa gga acc caa aac ctg cta aca tcg att gaa tct Asp Glu Asp Ile Gln Gly Thr Gln Asn Leu Leu Thr Ser Ile Glu Ser	1620	1625	1630	5073
gaa acg gca gct tct gag gaa acc ctg acc aac gcc tcc cag cgc atc Glu Thr Ala Ala Ser Glu Glu Thr Leu Thr Asn Ala Ser Gln Arg Ile	1635	1640	1645	5121
agc aag ctt gag agg aac gtg gaa gag ctt aag cgt aaa gct gcc cag Ser Lys Leu Glu Arg Asn Val Glu Leu Lys Arg Lys Ala Ala Gln	1650	1655	1660	5169
aac tct ggg gag gca gaa tat atc gaa aaa gta gta tat tct gta aaa Asn Ser Gly Glu Ala Glu Tyr Ile Glu Lys Val Val Tyr Ser Val Lys	1665	1670	1675	5217
cag aat gca gac gat gtt aaa aag act cta gat ggc gaa ctt gat gaa Gln Asn Ala Asp Asp Val Lys Lys Thr Leu Asp Gly Glu Leu Asp Glu	1685	1690	1695	5265
aag tat aag aag gta gaa agt tta att gcc caa aaa act gaa gag tca Lys Tyr Lys Val Glu Ser Leu Ile Ala Gln Lys Thr Glu Glu Ser	1700	1705	1710	5313
gca gat gcc agg agg aaa gct gag ctg cta caa aat gaa gca aaa aca Ala Asp Ala Arg Arg Lys Ala Glu Leu Leu Gln Asn Glu Ala Lys Thr	1715	1720	1725	5361
ctc ttg gct caa gct aac agc aag ctc cag ctg ttg gaa gac tta gaa Leu Leu Ala Gln Ala Asn Ser Lys Leu Gln Leu Leu Glu Asp Leu Glu	1730	1735	1740	5409
aga aaa tat gag gac aat caa aaa tac tta gaa gat aaa gct caa gaa Arg Lys Tyr Glu Asp Asn Gln Lys Tyr Leu Glu Asp Lys Ala Gln Glu	1745	1750	1755	5457
ttg gtg cga ctg gaa gga gag gtt cgc tcc ctt aag gac ata agt Leu Val Arg Leu Glu Gly Glu Val Arg Ser Leu Leu Lys Asp Ile Ser	1765	1770	1775	5505

gag aaa gtt gtc gtt tac agc acc tgc tta taacaggaag gggctgtaga 5555
 Glu Lys Val Ala Val Tyr Ser Thr Cys Leu
 1780 1785

ggggctcggt gaccaaggta aaccacacgc gcaaaccgag gcagtcatct acaaataacc 5615
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Gly Ser Cys Tyr Pro Ala Thr Gly Asp Leu Leu Ile Gly Arg Ala Gln
 35 40 45

Lys Leu Ser Val Thr Ser Thr Cys Gly Leu His Lys Pro Glu Pro Tyr
 50 55 60

Cys Ile Val Ser His Leu Gln Glu Asp Lys Lys Cys Phe Ile Cys Asp
 65 70 75 80

Ser Arg Asp Pro Tyr His Glu Thr Leu Asn Pro Asp Ser His Leu Ile
 85 90 95

Glu Asn Val Val Thr Thr Phe Ala Pro Asn Arg Leu Lys Ile Trp Trp
 100 105 110

Gln Ser Glu Asn Gly Val Glu Asn Val Thr Ile Gln Leu Asp Leu Glu
 115 120 125

Ala Glu Phe His Phe Thr His Leu Ile Met Thr Phe Lys Thr Phe Arg
 130 135 140

Pro Ala Ala Met Leu Ile Glu Arg Ser Ser Asp Phe Gly Lys Thr Trp
 145 150 155 160

Gly Val Tyr Arg Tyr Phe Ala Tyr Asp Cys Glu Ser Ser Phe Pro Gly
 165 170 175

Ile Ser Thr Gly Pro Met Lys Lys Val Asp Asp Ile Ile Cys Asp Ser
 180 185 190

Arg Tyr Ser Asp Ile Glu Pro Ser Thr Glu Gly Glu Val Ile Phe Arg
 195 200 205

Ala Leu Asp Pro Ala Phe Lys Ile Glu Asp Pro Tyr Ser Pro Arg Ile
 210 215 220

Gln Asn Leu Leu Lys Ile Thr Asn Leu Arg Ile Lys Phe Val Lys Leu

225 230 235 240
 His Thr Leu Gly Asp Asn Leu Leu Asp Ser Arg Met Glu Ile Arg Glu
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 Lys Tyr Tyr Tyr Ala Val Tyr Asp Met Val Val Arg Gly Asn Cys Phe
 260 265 270
 Cys Tyr Gly His Ala Ser Glu Cys Ala Pro Val Asp Gly Val Asn Glu
 275 280 285
 Glu Val Glu Gly Met Val His Gly His Cys Met Cys Arg His Asn Thr
 290 295 300
 Lys Gly Leu Asn Cys Glu Leu Cys Met Asp Phe Tyr His Asp Leu Pro
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 Trp Arg Pro Ala Glu Gly Arg Asn Ser Asn Ala Cys Lys Lys Cys Asn
 325 330 335
 Cys Asn Glu His Ser Ser Ser Cys His Phe Asp Met Ala Val Phe Leu
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 Ala Thr Gly Asn Val Ser Gly Gly Val Cys Asp Asn Cys Gln His Asn
 355 360 365
 Thr Met Gly Arg Asn Cys Glu Gln Cys Lys Pro Phe Tyr Phe Gln His
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 Pro Glu Arg Asp Ile Arg Asp Pro Asn Leu Cys Glu Pro Cys Thr Cys
 385 390 395 400
 Asp Pro Ala Gly Ser Glu Asn Gly Gly Ile Cys Asp Gly Tyr Thr Asp
 405 410 415
 Phe Ser Val Gly Leu Ile Ala Gly Gln Cys Arg Cys Lys Leu His Val
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 Glu Gly Glu Arg Cys Asp Val Cys Lys Glu Gly Phe Tyr Asp Leu Ser
 435 440 445
 Ala Glu Asp Pro Tyr Gly Cys Lys Ser Cys Ala Cys Asn Pro Leu Gly
 450 455 460
 Thr Ile Pro Gly Gly Asn Pro Cys Asp Ser Glu Thr Gly Tyr Cys Tyr
 465 470 475 480
 Cys Lys Arg Leu Val Thr Gly Gln Arg Cys Asp Gln Cys Leu Pro Gln
 485 490 495
 His Trp Gly Leu Ser Asn Asp Leu Asp Gly Cys Arg Pro Cys Asp Cys
 500 505 510
 Asp Leu Gly Gly Ala Leu Asn Asn Ser Cys Ser Glu Asp Ser Gly Gln
 515 520 525
 Cys Ser Cys Leu Pro His Met Ile Gly Arg Gln Cys Asn Glu Val Glu
 530 535 540
 Ser Gly Tyr Tyr Phe Thr Thr Leu Asp His Tyr Ile Tyr Glu Ala Glu
 545 550 555 560

Glu Ala Asn Leu Gly Pro Gly Val Val Val Val Glu Arg Gln Tyr Ile
 565 570 575

 Gln Asp Arg Ile Pro Ser Trp Thr Gly Pro Gly Phe Val Arg Val Pro
 580 585 590

 Glu Gly Ala Tyr Leu Glu Phe Phe Ile Asp Asn Ile Pro Tyr Ser Met
 595 600 605

 Glu Tyr Glu Ile Leu Ile Arg Tyr Glu Pro Gln Leu Pro Asp His Trp
 610 615 620

 Glu Lys Ala Val Ile Thr Val Gln Arg Pro Gly Lys Ile Pro Ala Ser
 625 630 640

 Ser Arg Cys Gly Asn Thr Val Pro Asp Asp Asn Gln Val Val Ser
 645 650 655

 Leu Ser Pro Gly Ser Arg Tyr Val Val Leu Pro Arg Pro Val Cys Phe
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 Glu Lys Gly Met Asn Tyr Thr Val Arg Leu Glu Leu Pro Gln Tyr Thr
 675 680 685

 Ala Ser Gly Ser Asp Val Glu Ser Pro Tyr Thr Phe Ile Asp Ser Leu
 690 695 700

 Val Leu Met Pro Tyr Cys Lys Ser Leu Asp Ile Phe Thr Val Gly Gly
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 Ser Gly Asp Gly Glu Val Thr Asn Ser Ala Trp Glu Thr Phe Gln Arg
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 Tyr Arg Cys Leu Glu Asn Ser Arg Ser Val Val Lys Thr Pro Met Thr
 740 745 750

 Asp Val Cys Arg Asn Ile Ile Phe Ser Ile Ser Ala Leu Ile His Gln
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 Thr Gly Leu Ala Cys Glu Cys Asp Pro Gln Gly Ser Leu Ser Ser Val
 770 775 780

 Cys Asp Pro Asn Gly Gly Gln Cys Gln Cys Arg Pro Asn Val Val Gly
 785 790 795 800

 Arg Thr Cys Asn Arg Cys Ala Pro Gly Thr Phe Gly Phe Gly Pro Asn
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 Gly Cys Lys Pro Cys Asp Cys His Leu Gln Gly Ser Ala Ser Ala Phe
 820 825 830

 Cys Asp Ala Ile Thr Gly Gln Cys His Cys Phe Gln Gly Ile Tyr Ala
 835 840 845

 Arg Gln Cys Asp Arg Cys Leu Pro Gly Tyr Trp Gly Phe Pro Ser Cys
 850 855 860

 Gln Pro Cys Gln Cys Asn Gly His Ala Leu Asp Cys Asp Thr Val Thr
 865 870 875 880

Gly Glu Cys Leu Ser Cys Gln Asp Tyr Thr Thr Gly His Asn Cys Glu
 885 890 895
 Arg Cys Leu Ala Gly Tyr Tyr Gly Asp Pro Ile Ile Gly Ser Gly Asp
 900 905 910
 His Cys Arg Pro Cys Pro Cys Pro Asp Gly Pro Asp Ser Gly Arg Gln
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 Phe Ala Arg Ser Cys Tyr Gln Asp Pro Val Thr Leu Gln Leu Ala Cys
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 Val Cys Asp Pro Gly Tyr Ile Gly Ser Arg Cys Asp Asp Cys Ala Ser
 945 950 955 960
 Gly Phe Phe Gly Asn Pro Ser Asp Phe Gly Gly Ser Cys Gln Pro Cys
 965 970 975
 Gln Cys His His Asn Ile Asp Thr Thr Asp Pro Glu Ala Cys Asp Lys
 980 985 990
 Asp Thr Gly Arg Cys Leu Lys Cys Leu Tyr His Thr Glu Gly Asp His
 995 1000 1005
 Cys Gln Leu Cys Gln Tyr Tyr Gly Asp Ala Leu Arg Gln Asp
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 Cys Arg Lys Cys Val Cys Asn Tyr Leu Gly Thr Val Lys Glu His Cys
 1025 1030 1035 1040
 Asn Gly Ser Asp Cys His Cys Asp Lys Ala Thr Gly Gln Cys Ser Cys
 1045 1050 1055
 Leu Pro Asn Val Ile Gly Gln Asn Cys Asp Arg Cys Ala Pro Asn Thr
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 Trp Gln Leu Ala Ser Gly Thr Gly Cys Gly Pro Cys Asn Cys Asn Ala
 1075 1080 1085
 Ala His Ser Phe Gly Pro Ser Cys Asn Glu Phe Thr Gly Gln Cys Gln
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 Cys Met Pro Gly Phe Gly Gly Arg Thr Cys Ser Glu Cys Gln Glu Leu
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 Phe Trp Gly Asp Pro Asp Val Glu Cys Arg Ala Cys Asp Cys Asp Pro
 1125 1130 1135
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 Cys Val Glu Gly Val Glu Gly Pro Arg Cys Asp Lys Cys Thr Arg Gly
 1155 1160 1165
 Tyr Ser Gly Val Phe Pro Asp Cys Thr Pro Cys His Gln Cys Phe Ala
 1170 1175 1180
 Leu Trp Asp Ala Ile Ile Gly Glu Leu Thr Asn Arg Thr His Lys Phe
 1185 1190 1195 1200
 Leu Glu Lys Ala Lys Ala Leu Lys Ile Ser Gly Val Ile Gly Pro Tyr

T D E S Y A E C T R E P D

1205

1210

1215

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Ile Leu Ala Gln Ser Pro Ala Ala Glu Pro Leu Lys Asn Ile Gly Ile
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Leu Phe Glu Glu Ala Glu Lys Leu Thr Lys Asp Val Thr Glu Lys Met
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Ala Gln Val Glu Val Lys Leu Thr Asp Thr Ala Ser Gln Ser Asn Ser
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Lys Thr Val Lys Glu Leu Ala Glu Gln Leu Glu Phe Ile Lys Asn Ser
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Leu Leu Asp Glu Leu Ala Gly Lys Leu Gln Ser Leu Asp Leu Ser Ala
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Ala Ala Gln Met Thr Cys Gly Thr Pro Pro Gly Ala Asp Cys Ser Glu
 1395 1400 1405

Ser Glu Cys Gly Gly Pro Asn Cys Arg Thr Asp Glu Gly Glu Lys Lys
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Cys Gly Gly Pro Gly Cys Gly Gly Leu Val Thr Val Ala His Ser Ala
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Trp Gln Lys Ala Met Asp Phe Asp Arg Asp Val Leu Ser Ala Leu Ala
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Lys Gln Ile Arg Asn Phe Leu Thr Glu Asp Ser Ala Asp Leu Asp Ser
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Ile Glu Ala Val Ala Asn Glu Val Leu Lys Ser Gly Asn Ala Ser Thr
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Pro Gln Gln Leu Gln Asn Leu Thr Glu Asp Ile Arg Glu Arg Val Glu
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 Asn Ser Gly Glu Ala Glu Tyr Ile Glu Lys Val Val Tyr Ser Val Lys
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 Gln Asn Ala Asp Asp Val Lys Lys Thr Leu Asp Gly Glu Leu Asp Glu
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ata tgt gac tcc cga gac cct tat cac gag acc ctc aac ccc gac agc	96		
Ile Cys Asp Ser Arg Asp Pro Tyr His Glu Thr Leu Asn Pro Asp Ser			
20	25	30	
cat ctc att gag aac gtg gtc acc aca ttt gct cca aac cgc ctt aag	144		
His Leu Ile Glu Asn Val Val Thr Thr Phe Ala Pro Asn Arg Leu Lys			
35	40	45	
atc tgg tgg caa tcg gaa aat ggt gtg gag aac gtg acc atc caa ctg	192		
Ile Trp Trp Gln Ser Glu Asn Gly Val Glu Asn Val Thr Ile Gln Leu			
50	55	60	
gac ctg gaa gca gaa ttc cat ttc act cat ctc atc atg acc ttc aag	240		
Asp Leu Glu Ala Glu Phe His Phe Thr His Leu Ile Met Thr Phe Lys			
65	70	75	80
aca ttc cgc cca gcc gcc atg ctg atc gag cgg tct tct gac ttt ggg	288		
Thr Phe Arg Pro Ala Ala Met Leu Ile Glu Arg Ser Ser Asp Phe Gly			
85	90	95	
aag act tgg ggc gtg tac aga tac ttc gcc tac gac tgt gag agc tcg	336		
Lys Thr Trp Gly Val Tyr Arg Phe Ala Tyr Asp Cys Glu Ser Ser			
100	105	110	
ttc cca ggc att tca act gga ccc atg aag aaa gtg gat gac atc atc	384		
Phe Pro Gly Ile Ser Thr Gly Pro Met Lys Lys Val Asp Asp Ile Ile			
115	120	125	
tgt gac tct cga tat tct gac att gag ccc tcg aca gaa gga gag gta	432		
Cys Asp Ser Arg Tyr Ser Asp Ile Glu Pro Ser Thr Glu Gly Glu Val			
130	135	140	
ata ttt cgt gct tta gat cct gct ttc aaa att gaa gac cct tat agt	480		
Ile Phe Arg Ala Leu Asp Pro Ala Phe Lys Ile Glu Asp Pro Tyr Ser			
145	150	155	160
cca agg ata cag aat cta tta aaa atc acc aac ttg aga atc aag ttt	528		
Pro Arg Ile Gln Asn Leu Leu Lys Ile Thr Asn Leu Arg Ile Lys Phe			
165	170	175	
gtg aaa ctg cac acc ttg ggg gat aac ctt ttg gac tcc aga atg gaa	576		
Val Lys Leu His Thr Leu Gly Asp Asn Leu Leu Asp Ser Arg Met Glu			
180	185	190	
atc cga gag aag tac tat tac gct gtt tat gat atg gtg gtt cga ggg	624		
Ile Arg Glu Lys Tyr Tyr Ala Val Tyr Asp Met Val Val Arg Gly			
195	200	205	
aac tgc ttc tgc tat ggc cac gcc agt gaa tgc gcc cct gtg gat gga	672		
Asn Cys Phe Cys Tyr Gly His Ala Ser Glu Cys Ala Pro Val Asp Gly			
210	215	220	
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Val Asn Glu Glu Val Glu Gly Met Val His Gly His Cys Met Cys Arg			
225	230	235	240
cac aac acc aaa ggc ctg aac tgt gag ctg tgc atg gat ttc tac cac	768		
His Asn Thr Lys Gly Leu Asn Cys Glu Leu Cys Met Asp Phe Tyr His			

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245	250	255	
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gtc ttc ctg gct act ggc aac gtc agc ggg gga gtg tgt gat aac tgt Val Phe Leu Ala Thr Gly Asn Val Ser Gly Gly Val Cys Asp Asn Cys 290	295	300	912
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tac act gat ttt tct gtg ggt ctc att gct ggt cag tgt cgg tgc aaa Tyr Thr Asp Phe Ser Val Gly Leu Ile Ala Gly Gln Cys Arg Cys Lys 355	360	365	1104
ttg cac gtg gag gga gag cgc tgt gat gtt tgt aaa gaa ggc ttc tac Leu His Val Glu Gly Glu Arg Cys Asp Val Cys Lys Glu Gly Phe Tyr 370	375	380	1152
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cct ctg gga aca att cct ggt ggg aat cct tgt gat tct gag act ggc Pro Leu Gly Thr Ile Pro Gly Gly Asn Pro Cys Asp Ser Glu Thr Gly 405	410	415	1248
tac tgc tac tgt aag cgc ctg gtg aca gga cag cgc tgt gac cag tgc Tyr Cys Tyr Cys Lys Arg Leu Val Thr Gly Gln Arg Cys Asp Gln Cys 420	425	430	1296
ctg ccg cag cac tgg ggt tta agc aat gat ttg gat ggg tgt cga cct Leu Pro Gln His Trp Gly Leu Ser Asn Asp Leu Asp Gly Cys Arg Pro 435	440	445	1344
tgt gac tgt gac ctt gga ggg gcg ctg aac aat agc tgc tcc gag gac Cys Asp Cys Asp Leu Gly Ala Leu Asn Asn Ser Cys Ser Glu Asp 450	455	460	1392
tcc ggc cag tgc tcc tgc ccc cac atg att ggg cgg cag tgt aac Ser Gly Gln Cys Ser Cys Leu Pro His Met Ile Gly Arg Gln Cys Asn 465	470	475	1440
gag gtg gag tcc ggt tac tac ttc acc acc ctg gac cac tac atc tac Glu Val Glu Ser Gly Tyr Tyr Phe Thr Thr Leu Asp His Tyr Ile Tyr 485	490	495	1488

HODDIE 2000

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cag tac att cag gac cgc att cct tcc tgg aca gga cct ggc ttc gtc Gln Tyr Ile Gln Asp Arg Ile Pro Ser Trp Thr Gly Pro Gly Phe Val 515 520 525	1584
cgg gtg cct gaa ggg gct tat ttg gag ttt ttc att gac aac ata cca Arg Val Pro Glu Gly Ala Tyr Leu Glu Phe Phe Ile Asp Asn Ile Pro 530 535 540	1632
tat tcc atg gag tat gaa atc ctg att cgc tat gag cca cag ctg ccg Tyr Ser Met Glu Tyr Glu Ile Leu Ile Arg Tyr Glu Pro Gln Leu Pro 545 550 555 560	1680
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cca gcc agc agc cga tgt ggt aac acc gtt ccc gat gat gac aac cag Pro Ala Ser Ser Arg Cys Gly Asn Thr Val Pro Asp Asp Asn Gln 580 585 590	1776
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cag tat acg gca tcg ggc agt gac gtg gag agc cct tac acg ttc atc Gln Tyr Thr Ala Ser Gly Ser Asp Val Glu Ser Pro Tyr Thr Phe Ile 625 630 635 640	1920
gac tcg ctt gtt ctc atg ccc tac tgt aaa tcg ctg gac atc ttc act Asp Ser Leu Val Leu Met Pro Tyr Cys Lys Ser Leu Asp Ile Phe Thr 645 650 655	1968
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ttc cag cgc tac agg tgt ctg gag aac agc agg agt gtg gta aaa aca Phe Gln Arg Tyr Arg Cys Leu Glu Asn Ser Arg Ser Val Val Lys Thr 675 680 685	2064
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895

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ta c tg t gt g ca g gg g gt g ac c gg g gt c ac c aag tt c tg t ca c ct g				532
Tyr Cys Val Gln Thr Gly Val Thr Gly Val Thr Lys Ser Cys His Leu	80	85	90	
tg c ga c gc c gg g ca g cc c ct g ca g gg g ga c gc c tt c ct g ac c				580
Cys Asp Ala Gly Gln Pro His Leu Gln His Gly Ala Ala Phe Leu Thr	95	100	105	
ga c ta c aa c ca g gc c ac c ac t tg g tg g ca a ag c ca g ac c at g				628
Asp Tyr Asn Asn Gln Ala Asp Thr Thr Trp Trp Gln Ser Gln Thr Met	110	115	120	
ct g gc c gg g gt g ca g ta c cc c ag c tc c at c ac g ct g ca c ct g				676
Leu Ala Gly Val Gln Tyr Pro Ser Ser Ile Asn Leu Thr Leu His Leu	125	130	135	
gg a aa a g c tt t ga c at c ac c ta t gt g cg t ct c aag tt c ca c ac c ag c				724
Gly Lys Ala Phe Asp Ile Thr Tyr Val Arg Leu Lys Phe His Thr Ser	140	145	150	155
cg c cc g ga g ag c tt t gc c att tac aag cg c aca cg g gaa ga c gg g cc c				772
Arg Pro Glu Ser Phe Ala Ile Tyr Lys Arg Thr Arg Glu Asp Gly Pro	160	165	170	
tg g att cct tac ca g tac tac agt gg t tcc tg c ga g aac ac c tac tcc				820
Trp Ile Pro Tyr Gln Tyr Ser Gly Ser Cys Glu Asn Thr Tyr Ser	175	180	185	
aa a gca aac cg c gg c tt c at c ag g aca gg a gg g ga c ga g ca g ca g gc c				868
Lys Ala Asn Arg Gly Phe Ile Arg Thr Gly Gly Asp Glu Gln Gln Ala	190	195	200	
tt g tg t ac t ga a tt c agt ga c att tct cc c ct c ac t gg g gg c aac				916
Leu Cys Thr Asp Glu Phe Ser Asp Ile Ser Pro Leu Thr Gly Gly Asn	205	210	215	
gt g gc c tt t tct acc ct g ga a gg a gg c ag c gc c tat aac tt c ga c				964
Val Ala Phe Ser Thr Leu Glu Gly Arg Pro Ser Ala Tyr Asn Phe Asp	220	225	230	235
aa a ag c ct c gt g ct g ca g gaa tg g gta ac t gc c ac t ga a ga t				1012
Asn Ser Pro Val Leu Gln Glu Trp Val Thr Ala Thr Asp Ile Arg Val	240	245	250	

act ctt aat cgc ctg aac act ttt gga gat gaa gtg ttt aac gat ccc Thr Leu Asn Arg Leu Asn Thr Phe Gly Asp Glu Val Phe Asn Asp Pro	255	260	265	1060	
aaa gtt ctc aag tcc tat tat tat gcc atc tct gat ttt gct gta ggt Lys Val Leu Lys Ser Tyr Tyr Ala Ile Ser Asp Phe Ala Val Gly	270	275	280	1108	
ggc aga tgt aaa tgt aat gga cac gca agc gag tgt atg aag aac gaa Gly Arg Cys Lys Cys Asn Gly His Ala Ser Glu Cys Met Lys Asn Glu	285	290	295	1156	
ttt gat aag ctg gtg tgt aat tgc aaa cat aac aca tat gga gta gac Phe Asp Lys Leu Val Cys Asn Cys Lys His Asn Thr Tyr Gly Val Asp	300	305	310	315	1204
tgt gaa aag tgt ctt cct ttc ttc aat gac cgg ccg tgg agg agg gca Cys Glu Lys Cys Leu Pro Phe Phe Asn Asp Arg Pro Trp Arg Arg Ala	320	325	330		1252
act gcg gaa agt gcc agt gaa tgc ctg ccc tgt gat tgc aat ggt cga Thr Ala Glu Ser Ala Ser Glu Cys Leu Pro Cys Asp Cys Asn Gly Arg	335	340	345		1300
tcc cag gaa tgc tac ttc gac cct gaa ctc tat cgt tcc act ggc cat Ser Gln Glu Cys Tyr Phe Asp Pro Glu Leu Tyr Arg Ser Thr Gly His	350	355	360		1348
ggg ggc cac tgt acc aac tgc cag gat aac aca gat ggc gcc cac tgt Gly Gly His Cys Thr Asn Cys Gln Asp Asn Thr Asp Gly Ala His Cys	365	370	375		1396
gag agg tgc cga gag aac ttc ttc cgc ctt ggc aac aat gaa gcc tgc Glu Arg Cys Arg Glu Asn Phe Phe Arg Leu Gly Asn Asn Glu Ala Cys	380	385	390	395	1444
tct tca tgc cac tgt agt cct gtg ggc tct cta agc aca cag tgt gat Ser Ser Cys His Cys Ser Pro Val Gly Ser Leu Ser Thr Gln Cys Asp	400	405	410		1492
agt tac ggc aga tgc agc tgt aag cca gga gtg atg ggg gac aaa tgt Ser Tyr Gly Arg Cys Ser Cys Lys Pro Gly Val Met Gly Asp Lys Cys	415	420	425		1540
gac cgt tgc cag cct gga ttc cat tct ctc act gaa gca gga tgc agg Asp Arg Cys Gln Pro Gly Phe His Ser Leu Thr Glu Ala Gly Cys Arg	430	435	440		1588
cca tgc tct tgt gat ccc tct ggc agc ata gat gaa tgt aat gtt gaa Pro Cys Ser Cys Asp Pro Ser Gly Ser Ile Asp Glu Cys Asn Val Glu	445	450	455		1636
aca gga aga tgt gtt tgc aaa gac aat gtc gaa ggc ttc aat tgt gaa Thr Gly Arg Cys Val Cys Lys Asp Asn Val Glu Gly Phe Asn Cys Glu	460	465	470	475	1684
aga tgc aaa cct gga ttt ttt aat ctg gaa tca tct aat cct cgg ggt Arg Cys Lys Pro Gly Phe Phe Asn Leu Glu Ser Ser Asn Pro Arg Gly	480	485	490		1732

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tgc aca ccc tgc ttc tgc ttt ggg cat tct tct gtc tgt aca aac gct Cys Thr Pro Cys Phe Cys Phe Gly His Ser Ser Val Cys Thr Asn Ala 495 500 505	1780
gtt ggc tac agt gtt tat tct atc tcc tct acc ttt cag att gat gag Val Gly Tyr Ser Val Tyr Ser Ile Ser Ser Thr Phe Gln Ile Asp Glu 510 515 520	1828
gat ggg tgg cgt gcg gaa cag aga gat ggc tct gaa gca tct ctc gag Asp Gly Trp Arg Ala Glu Gln Arg Asp Gly Ser Glu Ala Ser Leu Glu 525 530 535	1876
tgg tcc tct gag agg caa gat atc gcc gtc atc tca gac agc tac ttt Trp Ser Ser Glu Arg Gln Asp Ile Ala Val Ile Ser Asp Ser Tyr Phe 540 545 550 555	1924
cct cgg tac ttc att gct cct gca aag ttc ttg ggc aag cag cgt ttg Pro Arg Tyr Phe Ile Ala Pro Ala Lys Phe Leu Gly Lys Gln Val Leu 560 565 570	1972
agt tat ggt cag aac ctc tcc ttc tcc ttt cga gtc gac agg cga gat Ser Tyr Gly Gln Asn Leu Ser Phe Arg Val Asp Arg Arg Asp 575 580 585	2020
act cgc ctc tct gcc gaa gac ctt gtc ctt gag gga gct ggc tta aga Thr Arg Leu Ser Ala Glu Asp Leu Val Leu Glu Gly Ala Gly Leu Arg 590 595 600	2068
gta tct gta ccc ttg atc gct cag ggc aat tcc tat cca agt gag acc Val Ser Val Pro Leu Ile Ala Gln Gly Asn Ser Tyr Pro Ser Glu Thr 605 610 615	2116
act gtc aag tat gtc ttc agg ctc cat gaa gca aca gat tac cct tgg Thr Val Lys Tyr Val Phe Arg Leu His Glu Ala Thr Asp Tyr Pro Trp 620 625 630 635	2164
agg cct gct ctt acc cct ttt gaa ttt cag aag ctc cta aac aac ttg Arg Pro Ala Leu Thr Pro Phe Glu Phe Gln Lys Leu Leu Asn Asn Leu 640 645 650	2212
acc tct atc aag ata cgt ggg aca tac agt gag aga agt gct gga tat Thr Ser Ile Lys Ile Arg Gly Thr Tyr Ser Glu Arg Ser Ala Gly Tyr 655 660 665	2260
ttg gat gat gtc acc ctg gca agt gct cgt cct ggg cct gga gtc cct Leu Asp Asp Val Thr Leu Ala Ser Ala Arg Pro Gly Pro Gly Val Pro 670 675 680	2308
gca act tgg gtg gag tcc tgc acc tgt cct gtc gga tat gga ggg cag Ala Thr Trp Val Glu Ser Cys Thr Cys Pro Val Gly Tyr Gly Gln 685 690 695	2356
ttt tgt gag atg tgc ctc tca ggt tac aga aga gaa act cct aat ctt Phe Cys Glu Met Cys Leu Ser Gly Tyr Arg Arg Glu Thr Pro Asn Leu 700 705 710 715	2404
gga cca tac agt cca tgt gtg ctt tgc gcc tgc aat gga cac agc gag Gly Pro Tyr Ser Pro Cys Val Leu Cys Ala Cys Asn Gly His Ser Glu 720 725 730	2452
acc tgt gat cct gag aca ggt gtt tgt aac tgc aga gac aat acg gct	2500

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Thr Cys Asp Pro Glu Thr Gly Val Cys Asn Cys Arg Asp Asn Thr Ala			
735	740	745	
ggc ccg cac tgt gag aag tgc agt gat ggg tac tat gga gat tca act			2548
Gly Pro His Cys Glu Lys Cys Ser Asp Gly Tyr Tyr Gly Asp Ser Thr			
750	755	760	
gca ggc acc tcc tcc gat tgc caa ccc tgt ccg tgt cct gga ggt tca			2596
Ala Gly Thr Ser Ser Asp Cys Gln Pro Cys Pro Cys Pro Gly Gly Ser			
765	770	775	
agt tgt gct gtt gtt ccc aag aca aag gag gtg gtg tgc acc aac tgt			2644
Ser Cys Ala Val Val Pro Lys Thr Lys Glu Val Val Cys Thr Asn Cys			
780	785	790	795
cct act ggc acc act ggt aag aga tgt gag ctc tgt gat gat ggc tac			2692
Pro Thr Gly Thr Gly Lys Arg Cys Glu Leu Cys Asp Asp Gly Tyr			
800	805	810	
ttt gga gac ccc ctg ggt aga aac ggc cct gtg aga ctt tgc cgc ctg			2740
Phe Gly Asp Pro Leu Gly Arg Asn Gly Pro Val Arg Leu Cys Arg Leu			
815	820	825	
tgc cag tgc agt gac aac atc gat ccc aac gca gtt gga aat tgc aat			2788
Cys Gln Cys Ser Asp Asn Ile Asp Pro Asn Ala Val Gly Asn Cys Asn			
830	835	840	
cgc ttg acg gga gaa tgc ctg aag tgc atc tat aac act gct ggc ttc			2836
Arg Leu Thr Gly Glu Cys Leu Lys Cys Ile Tyr Asn Thr Ala Gly Phe			
845	850	855	
tat tgt gac cgg tgc aaa gac gga ttt ttt gga aat ccc ctg gct ccc			2884
Tyr Cys Asp Arg Cys Lys Asp Gly Phe Phe Gly Asn Pro Leu Ala Pro			
860	865	870	875
aat cca gca gac aaa tgc aaa gcc tgc aat tgc aat ccg tat ggg acc			2932
Asn Pro Ala Asp Lys Cys Lys Ala Cys Asn Cys Asn Pro Tyr Gly Thr			
880	885	890	
atg aag cag cag agc agc tgt aac ccc gtg acg ggg cag tgt gaa tgt			2980
Met Lys Gln Gln Ser Ser Cys Asn Pro Val Thr Gly Gln Cys Glu Cys			
895	900	905	
ttg cct cac gtg act ggc cag gac tgt ggt gct tgt gac cct gga ttc			3028
Leu Pro His Val Thr Gly Gln Asp Cys Gly Ala Cys Asp Pro Gly Phe			
910	915	920	
tac aat ctg cag agt ggg caa ggc tgt gag agg tgt gac tgc cat gcc			3076
Tyr Asn Leu Gln Ser Gly Gln Gly Cys Glu Arg Cys Asp Cys His Ala			
925	930	935	
ttg ggc tcc acc aat ggg cag tgt gac atc cgc acc ggc cag tgt gag			3124
Leu Gly Ser Thr Asn Gly Gln Cys Asp Ile Arg Thr Gly Gln Cys Glu			
940	945	950	955
tgc cag ccc ggc atc act ggt cag cac tgt gag cgc tgt gag gtc aac			3172
Cys Gln Pro Gly Ile Thr Gly Gln His Cys Glu Arg Cys Glu Val Asn			
960	965	970	
cac ttt ggg ttt gga cct gaa ggc tgc aaa ccc tgt gac tgt cat cct			3220
His Phe Gly Phe Gly Pro Glu Gly Cys Lys Pro Cys Asp Cys His Pro			

POTENTIAL PROTEINS

975

980

985

gag gga tct tca ctt cag tgc aaa gat gat ggt cgc tgt gaa tgc Glu Gly Ser Leu Ser Leu Gln Cys Lys Asp Asp Gly Arg Cys Glu Cys 990 995 1000		3268
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ttc tac aat cgg tct tgg cct ggc tgc cag gaa tgt cca gct tgt tac Phe Tyr Asn Arg Ser Trp Pro Gly Cys Gln Glu Cys Pro Ala Cys Tyr 1020 1025 1030 1035		3364
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tta gag agt ctc ata gca aac ctt gga act ggg gat gag atg gtg aca Leu Glu Ser Leu Ile Ala Asn Leu Gly Thr Gly Asp Glu Met Val Thr 1055 1060 1065		3460
gat caa gcc ttc gag gat aga cta aag gaa gca gag agg gaa gtt atg Asp Gln Ala Phe Glu Asp Arg Leu Lys Glu Ala Glu Arg Glu Val Met 1070 1075 1080		3508
gac ctc ctt cgt gag gcc cag gat gtc aaa gat gtt gac cag aat ttg Asp Leu Leu Arg Glu Ala Gln Asp Val Lys Asp Val Asp Gln Asn Leu 1085 1090 1095		3556
atg gat cgc cta cag aga gtg aat aac act ctg tcc agc caa att agc Met Asp Arg Leu Gln Arg Val Asn Asn Thr Leu Ser Ser Gln Ile Ser 1100 1105 1110 1115		3604
cgt tta cag aat atc cgg aat acc att gaa gag act gga aac ttg gct Arg Leu Gln Asn Ile Arg Asn Thr Ile Glu Glu Thr Gly Asn Leu Ala 1120 1125 1130		3652
gaa caa gcg cgt gcc cat gta gag aac aca gag cgg ttg att gaa atc Glu Gln Ala Arg Ala His Val Glu Asn Thr Glu Arg Leu Ile Glu Ile 1135 1140 1145		3700
gca tcc aga gaa ctt gag aaa gca aaa gtc gct gct gcc aat gtg tca Ala Ser Arg Glu Leu Glu Lys Ala Lys Val Ala Ala Asn Val Ser 1150 1155 1160		3748
gtc act cag cca gaa tct aca ggg gac cca aac aac atg act ctt ttg Val Thr Gln Pro Glu Ser Thr Gly Asp Pro Asn Asn Met Thr Leu Leu 1165 1170 1175		3796
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gac att gtt cga gtg gca aag aca gcc aat gat acg tca act gag gca Asp Ile Val Arg Val Ala Lys Thr Ala Asn Asp Thr Ser Thr Glu Ala 1200 1205 1210		3892
tac aac ctg ctt ctg agg aca ctg gca gga gaa aat caa aca gca ttt Tyr Asn Leu Leu Leu Arg Thr Leu Ala Gly Glu Asn Gln Thr Ala Phe 1215 1220 1225		3940

gag att gag gag ctt aat agg aag tat gaa caa gca aag aac atc tca Glu Ile Glu Glu Leu Asn Arg Lys Tyr Glu Gln Ala Lys Asn Ile Ser	1230	1235	1240	3988
cag gat ctg gaa aaa caa gct gcc cga gta cat gag gag gcc aaa agg Gln Asp Leu Glu Lys Gln Ala Ala Arg Val His Glu Glu Ala Lys Arg	1245	1250	1255	4036
gcc ggt gac aaa gct gtg gag atc tat gcc agc gtg gct cag ctg agc Ala Gly Asp Lys Ala Val Glu Ile Tyr Ala Ser Val Ala Gln Leu Ser	1260	1265	1270	1275
cct ttg gac tct gag aca ctg gag aat gaa gca aat aac ata aag atg Pro Leu Asp Ser Glu Thr Leu Glu Asn Glu Ala Asn Asn Ile Lys Met	1280	1285	1290	4132
gaa gct gag aat ctg gaa caa ctg att gac cag aaa tta aaa gat tat Glu Ala Glu Asn Leu Glu Gln Leu Ile Asp Gln Lys Leu Lys Asp Tyr	1295	1300	1305	4180
gag gac ctc aga gaa gat atg aga ggg aag gaa ctt gaa gtc aag aac Glu Asp Leu Arg Glu Asp Met Arg Gly Lys Glu Leu Glu Val Lys Asn	1310	1315	1320	4228
ctt ctg gag aaa ggc aag act gaa cag cag acc gca gac caa ctc cta Leu Leu Glu Lys Gly Lys Thr Glu Gln Gln Thr Ala Asp Gln Leu Leu	1325	1330	1335	4276
gcc cga gct gat gct gcc aag gcc ctc gct gaa gaa gct gca aag aag Ala Arg Ala Asp Ala Ala Lys Ala Leu Ala Glu Glu Ala Ala Lys Lys	1340	1345	1350	1355
gga cgg gat acc tta caa gaa gct aat gac att ctc aac aac ctg aaa Gly Arg Asp Thr Leu Gln Glu Ala Asn Asp Ile Leu Asn Asn Leu Lys	1360	1365	1370	4324
gat ttt gat agg cgc gtg aac gat aac aag acg gcc gca gag gag gca Asp Phe Asp Arg Arg Val Asn Asp Asn Lys Thr Ala Ala Glu Glu Ala	1375	1380	1385	4372
cta agg aag att cct gcc atc aac cag acc atc act gaa gcc aat gaa Leu Arg Lys Ile Pro Ala Ile Asn Gln Thr Ile Thr Glu Ala Asn Glu	1390	1395	1400	4420
aag acc aga gaa gcc cag cag gcc ctg ggc agt gct gcg gca gat gcc Lys Thr Arg Glu Ala Gln Ala Leu Gly Ser Ala Ala Asp Ala	1405	1410	1415	4468
aca gag gcc aag aac aag gcc cat gag gca gag agg atc gca agc gct Thr Glu Ala Lys Asn Lys Ala His Glu Ala Glu Arg Ile Ala Ser Ala	1420	1425	1430	4516
gtc caa aag aat gcc acc agc acc aag gca gaa gct gaa aga act ttt Val Gln Lys Asn Ala Thr Ser Thr Lys Ala Glu Ala Glu Arg Thr Phe	1440	1445	1450	4564
gca gaa gtt aca gat ctg gat aat gag gtg aac aat atg ttg aag caa Ala Glu Val Thr Asp Leu Asp Asn Glu Val Asn Asn Met Leu Lys Gln	1455	1460	1465	4612
				4660

1000
900
800
700
600
500
400
300
200
100

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Leu Gln Glu Ala Glu Lys Glu Leu Lys Arg Lys Gln Asp Asp Ala Asp	
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cag gac atg atg gca ggg atg gct tca cag gct gct caa gaa gcc	4756
Gln Asp Met Met Ala Gly Met Ala Ser Gln Ala Ala Gln Glu Ala	
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gag atc aat gcc aga aaa gcc aaa aac tct gtt act agc ctc ctc agc	4804
Glu Ile Asn Ala Arg Lys Ala Lys Asn Ser Val Thr Ser Leu Leu Ser	
1500 1505 1510 1515	
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Ile Ile Asn Asp Leu Leu Glu Gln Leu Gly Gln Leu Asp Thr Val Asp	
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Leu Asn Lys Leu Asn Glu Ile Glu Gly Thr Leu Asn Lys Ala Lys Asp	
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Glu Met Lys Val Ser Asp Leu Asp Arg Lys Val Ser Asp Leu Glu Asn	
1550 1555 1560	
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Glu Ala Lys Lys Gln Glu Ala Ala Ile Met Asp Tyr Asn Arg Asp Ile	
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Leu Pro Ser Gly Cys Phe Asn Thr Pro Ser Ile Glu Lys Pro	
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35 40 45	
Arg Cys Met Pro Glu Phe Val Asn Ala Ala Phe Asn Val Thr Val Val	

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50	55	60
Ala Thr Asn Thr Cys Gly Thr Pro Pro Glu Glu Tyr Cys Val Gln Thr		
65	70	75
Gly Val Thr Gly Val Thr Lys Ser Cys His Leu Cys Asp Ala Gly Gln		
85	90	95
Pro His Leu Gln His Gly Ala Ala Phe Leu Thr Asp Tyr Asn Asn Gln		
100	105	110
Ala Asp Thr Thr Trp Trp Gln Ser Gln Thr Met Leu Ala Gly Val Gln		
115	120	125
Tyr Pro Ser Ser Ile Asn Leu Thr Leu His Leu Gly Lys Ala Phe Asp		
130	135	140
Ile Thr Tyr Val Arg Leu Lys Phe His Thr Ser Arg Pro Glu Ser Phe		
145	150	155
Ala Ile Tyr Lys Arg Thr Arg Glu Asp Gly Pro Trp Ile Pro Tyr Gln		
165	170	175
Tyr Tyr Ser Gly Ser Cys Glu Asn Thr Tyr Ser Lys Ala Asn Arg Gly		
180	185	190
Phe Ile Arg Thr Gly Asp Glu Gln Gln Ala Leu Cys Thr Asp Glu		
195	200	205
Phe Ser Asp Ile Ser Pro Leu Thr Gly Asn Val Ala Phe Ser Thr		
210	215	220
Leu Glu Gly Arg Pro Ser Ala Tyr Asn Phe Asp Asn Ser Pro Val Leu		
225	230	235
Gln Glu Trp Val Thr Ala Thr Asp Ile Arg Val Thr Leu Asn Arg Leu		
245	250	255
Asn Thr Phe Gly Asp Glu Val Phe Asn Asp Pro Lys Val Leu Lys Ser		
260	265	270
Tyr Tyr Tyr Ala Ile Ser Asp Phe Ala Val Gly Gly Arg Cys Lys Cys		
275	280	285
Asn Gly His Ala Ser Glu Cys Met Lys Asn Glu Phe Asp Lys Leu Val		
290	295	300
Cys Asn Cys Lys His Asn Thr Tyr Gly Val Asp Cys Glu Lys Cys Leu		
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Pro Phe Phe Asn Asp Arg Pro Trp Arg Arg Ala Thr Ala Glu Ser Ala		
325	330	335
Ser Glu Cys Leu Pro Cys Asp Cys Asn Gly Arg Ser Gln Glu Cys Tyr		
340	345	350
Phe Asp Pro Glu Leu Tyr Arg Ser Thr Gly His Gly His Cys Thr		
355	360	365
Asn Cys Gln Asp Asn Thr Asp Gly Ala His Cys Glu Arg Cys Arg Glu		
370	375	380

Asn	Phe	Phe	Arg	Leu	Gly	Asn	Asn	Glu	Ala	Cys	Ser	Ser	Cys	His	Cys
385															400
Ser	Pro	Val	Gly	Ser	Leu	Ser	Thr	Gln	Cys	Asp	Ser	Tyr	Gly	Arg	Cys
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Ser	Cys	Lys	Pro	Gly	Val	Met	Gly	Asp	Lys	Cys	Asp	Arg	Cys	Gln	Pro
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Gly	Phe	His	Ser	Leu	Thr	Glu	Ala	Gly	Cys	Arg	Pro	Cys	Ser	Cys	Asp
															445
Pro	Ser	Gly	Ser	Ile	Asp	Glu	Cys	Asn	Val	Glu	Thr	Gly	Arg	Cys	Val
															460
Cys	Lys	Asp	Asn	Val	Glu	Gly	Phe	Asn	Cys	Glu	Arg	Cys	Lys	Pro	Gly
															480
Phe	Phe	Asn	Leu	Glu	Ser	Ser	Asn	Pro	Arg	Gly	Cys	Thr	Pro	Cys	Phe
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Cys	Phe	Gly	His	Ser	Ser	Val	Cys	Thr	Asn	Ala	Val	Gly	Tyr	Ser	Val
															510
Tyr	Ser	Ile	Ser	Ser	Thr	Phe	Gln	Ile	Asp	Glu	Asp	Gly	Trp	Arg	Ala
															525
Glu	Gln	Arg	Asp	Gly	Ser	Glu	Ala	Ser	Leu	Glu	Trp	Ser	Ser	Glu	Arg
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Gln	Asp	Ile	Ala	Val	Ile	Ser	Asp	Ser	Tyr	Phe	Pro	Arg	Tyr	Phe	Ile
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Ala	Pro	Ala	Lys	Phe	Leu	Gly	Lys	Gln	Val	Leu	Ser	Tyr	Gly	Gln	Asn
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Leu	Ser	Phe	Ser	Phe	Arg	Val	Asp	Arg	Arg	Asp	Thr	Arg	Leu	Ser	Ala
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Glu	Asp	Leu	Val	Leu	Glu	Gly	Ala	Gly	Leu	Arg	Val	Ser	Val	Pro	Leu
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Ile	Ala	Gln	Gly	Asn	Ser	Tyr	Pro	Ser	Glu	Thr	Thr	Val	Lys	Tyr	Val
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Phe	Arg	Leu	His	Glu	Ala	Thr	Asp	Tyr	Pro	Trp	Arg	Pro	Ala	Leu	Thr
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Pro	Phe	Glu	Phe	Gln	Lys	Leu	Leu	Asn	Asn	Leu	Thr	Ser	Ile	Lys	Ile
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Arg	Gly	Thr	Tyr	Ser	Glu	Arg	Ser	Ala	Gly	Tyr	Leu	Asp	Asp	Val	Thr
															670
Leu	Ala	Ser	Ala	Arg	Pro	Gly	Pro	Gly	Val	Pro	Ala	Thr	Trp	Val	Glu
															685
Ser	Cys	Thr	Cys	Pro	Val	Gly	Tyr	Gly	Gly	Gln	Phe	Cys	Glu	Met	Cys
															700

Leu Ser Gly Tyr Arg Arg Glu Thr Pro Asn Leu Gly Pro Tyr Ser Pro
 705 710 715 720
 Cys Val Leu Cys Ala Cys Asn Gly His Ser Glu Thr Cys Asp Pro Glu
 725 730 735
 Thr Gly Val Cys Asn Cys Arg Asp Asn Thr Ala Gly Pro His Cys Glu
 740 745 750
 Lys Cys Ser Asp Gly Tyr Tyr Gly Asp Ser Thr Ala Gly Thr Ser Ser
 755 760 765
 Asp Cys Gln Pro Cys Pro Cys Pro Gly Gly Ser Ser Cys Ala Val Val
 770 775 780
 Pro Lys Thr Lys Glu Val Val Cys Thr Asn Cys Pro Thr Gly Thr Thr
 785 790 795 800
 Gly Lys Arg Cys Glu Leu Cys Asp Asp Gly Tyr Phe Gly Asp Pro Leu
 805 810 815
 Gly Arg Asn Gly Pro Val Arg Leu Cys Arg Leu Cys Gln Cys Ser Asp
 820 825 830
 Asn Ile Asp Pro Asn Ala Val Gly Asn Cys Asn Arg Leu Thr Gly Glu
 835 840 845
 Cys Leu Lys Cys Ile Tyr Asn Thr Ala Gly Phe Tyr Cys Asp Arg Cys
 850 855 860
 Lys Asp Gly Phe Phe Gly Asn Pro Leu Ala Pro Asn Pro Ala Asp Lys
 865 870 875 880
 Cys Lys Ala Cys Asn Cys Asn Pro Tyr Gly Thr Met Lys Gln Gln Ser
 885 890 895
 Ser Cys Asn Pro Val Thr Gly Gln Cys Glu Cys Leu Pro His Val Thr
 900 905 910
 Gly Gln Asp Cys Gly Ala Cys Asp Pro Gly Phe Tyr Asn Leu Gln Ser
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 Gly Gln Gly Cys Glu Arg Cys Asp Cys His Ala Leu Gly Ser Thr Asn
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 Gly Gln Cys Asp Ile Arg Thr Gly Gln Cys Glu Cys Gln Pro Gly Ile
 945 950 955 960
 Thr Gly Gln His Cys Glu Arg Cys Glu Val Asn His Phe Gly Phe Gly
 965 970 975
 Pro Glu Gly Cys Lys Pro Cys Asp Cys His Pro Glu Gly Ser Leu Ser
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 Leu Gln Cys Lys Asp Asp Gly Arg Cys Glu Cys Arg Glu Gly Phe Val
 995 1000 1005
 Gly Asn Arg Cys Asp Gln Cys Glu Glu Asn Tyr Phe Tyr Asn Arg Ser
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 Lys Val Ala Asp His Arg Val Lys Leu Gln Glu Leu Glu Ser Leu Ile
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 1075 1080 1085
 Ala Gln Asp Val Lys Asp Val Asp Gln Asn Leu Met Asp Arg Leu Gln
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 Arg Asn Thr Ile Glu Glu Thr Gly Asn Leu Ala Glu Gln Ala Arg Ala
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 His Val Glu Asn Thr Glu Arg Leu Ile Glu Ile Ala Ser Arg Glu Leu
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 Glu Lys Ala Lys Val Ala Ala Asn Val Ser Val Thr Gln Pro Glu
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 Lys Leu Ala Glu Arg His Lys Gln Glu Ala Asp Asp Ile Val Arg Val
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 Arg Thr Leu Ala Gly Glu Asn Gln Thr Ala Phe Glu Ile Glu Glu Leu
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 Asn Arg Lys Tyr Glu Gln Ala Lys Asn Ile Ser Gln Asp Leu Glu Lys
 1235 1240 1245
 Gln Ala Ala Arg Val His Glu Glu Ala Lys Arg Ala Gly Asp Lys Ala
 1250 1255 1260
 Val Glu Ile Tyr Ala Ser Val Ala Gln Leu Ser Pro Leu Asp Ser Glu
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 Thr Leu Glu Asn Glu Ala Asn Asn Ile Lys Met Glu Ala Glu Asn Leu
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 Glu Gln Leu Ile Asp Gln Lys Leu Lys Asp Tyr Glu Asp Leu Arg Glu
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 Asp Met Arg Gly Lys Glu Leu Glu Val Lys Asn Leu Leu Glu Lys Gly
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 Lys Thr Glu Gln Gln Thr Ala Asp Gln Leu Ala Arg Ala Asp Ala
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 Ala Lys Ala Leu Ala Glu Glu Ala Ala Lys Lys Gly Arg Asp Thr Leu
 1345 1350 1355 1360

Gln Glu Ala Asn Asp Ile Leu Asn Asn Leu Lys Asp Phe Asp Arg Arg
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 Val Asn Asp Asn Lys Thr Ala Ala Glu Glu Ala Leu Arg Lys Ile Pro
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 Ala Ile Asn Gln Thr Ile Thr Glu Ala Asn Glu Lys Thr Arg Glu Ala
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 Thr Ser Thr Lys Ala Glu Ala Glu Arg Thr Phe Ala Glu Val Thr Asp
 1445 1450 1455
 Leu Asp Asn Glu Val Asn Asn Met Leu Lys Gln Leu Gln Glu Ala Glu
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 Lys Glu Leu Lys Arg Lys Gln Asp Asp Ala Asp Gln Asp Met Met Met
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 Ala Gly Met Ala Ser Gln Ala Ala Gln Glu Ala Glu Ile Asn Ala Arg
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tgc atg ccc gag ttc gtc aac gcc gct ttc aac gtg act gtg gtg gcc			96
Cys Met Pro Glu Phe Val Asn Ala Ala Phe Asn Val Thr Val Val Ala			
20	25	30	
acc aac acg tgt ggg act ccg ccc gag gaa tac tgt gtg cag acc ggg			144
Thr Asn Thr Cys Gly Thr Pro Pro Glu Glu Tyr Cys Val Gln Thr Gly			
35	40	45	
gtg acc ggg gtc acc aag tcc tgt cac ctg tgc gac gcc ggg cag ccc			192
Val Thr Gly Val Thr Lys Ser Cys His Leu Cys Asp Ala Gly Gln Pro			
50	55	60	
cac ctg cag cac ggg gca gca gcc ttc ctg acc gac tac aac aac cag gcc			240
His Leu Gln His Gly Ala Ala Phe Leu Thr Asp Tyr Asn Asn Gln Ala			
65	70	75	80
gac acc acc tgg tggcaa agc cag acc atg ctg gcc ggg gtg cag tac			288
Asp Thr Thr Trp Trp Gln Ser Gln Thr Met Leu Ala Gly Val Gln Tyr			
85	90	95	
ccc agc tcc atc aac ctc acg ctg cac ctg gga aaa gct ttt gac atc			336
Pro Ser Ser Ile Asn Leu Thr Leu His Leu Gly Lys Ala Phe Asp Ile			
100	105	110	
acc tat gtg cgt ctc aag ttc cac acc agc cgc ccg gag agc ttt gcc			384
Thr Tyr Val Arg Leu Lys Phe His Thr Ser Arg Pro Glu Ser Phe Ala			
115	120	125	
att tac aag cgc aca cgg gaa gac ggg ccc tgg att cct tac cag tac			432
Ile Tyr Lys Arg Thr Arg Glu Asp Gly Pro Trp Ile Pro Tyr Gln Tyr			
130	135	140	
tac agt ggt tcc tgc gag aac acc tac tcc aag gca aac cgc ggc ttc			480
Tyr Ser Gly Ser Cys Glu Asn Thr Tyr Ser Lys Ala Asn Arg Gly Phe			
145	150	155	160
atc agg aca gga ggg gac gag cag cag gcc ttg tgt act gat gaa ttc			528
Ile Arg Thr Gly Gly Asp Glu Gln Gln Ala Leu Cys Thr Asp Glu Phe			
165	170	175	
agt gac att tct ccc ctc act ggg ggc aac gtg gcc ttt tct acc ctg			576
Ser Asp Ile Ser Pro Leu Thr Gly Gly Asn Val Ala Phe Ser Thr Leu			
180	185	190	
gaa gga agg ccc agc gcc tat aac ttt gac aat agc cct gtg ctg cag			624
Glu Gly Arg Pro Ser Ala Tyr Asn Phe Asp Asn Ser Pro Val Leu Gln			
195	200	205	
gaa tgg gta act gcc act gac atc aga gta act ctt aat cgc ctg aac			672
Glu Trp Val Thr Ala Thr Asp Ile Arg Val Thr Leu Asn Arg Leu Asn			
210	215	220	
act ttt gga gat gaa gtg ttt aac gat ccc aaa gtt ctc aag tcc tat			720
Thr Phe Gly Asp Glu Val Phe Asn Asp Pro Lys Val Leu Lys Ser Tyr			
225	230	235	240
tat tat gcc atc tct gat ttt gct gta ggt ggc aga tgt aaa tgt aat			768
Tyr Tyr Ala Ile Ser Asp Phe Ala Val Gly Gly Arg Cys Lys Cys Asn			

TOP SECRET

245	250	255	
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aat tgc aaa cat aac aca tat gga gta gac tgt gaa aag tgt ctt cct Asn Cys Lys His Asn Thr Tyr Gly Val Asp Cys Glu Lys Cys Leu Pro 275	280	285	864
ttc ttc aat gac cgg ccg tgg agg agg gca act gcg gaa agt gcc agt Phe Phe Asn Asp Arg Pro Trp Arg Arg Ala Thr Ala Glu Ser Ala Ser 290	295	300	912
gaa tgc ctg ccc tgt gat tgc aat ggt cga tcc cag gaa tgc tac ttc Glu Cys Leu Pro Cys Asp Cys Asn Gly Arg Ser Gln Glu Cys Tyr Phe 305	310	315	960
gac cct gaa ctc tat cgt tcc act ggc cat ggg ggc cac tgt acc aac Asp Pro Glu Leu Tyr Arg Ser Thr Gly His Gly Gly His Cys Thr Asn 325	330	335	1008
tgc cag gat aac aca gat ggc gcc cac tgt gag agg tgc cga gag aac Cys Gln Asp Asn Thr Asp Gly Ala His Cys Glu Arg Cys Arg Glu Asn 340	345	350	1056
ttc ttc cgc ctt ggc aac aat gaa gcc tgc tct tca tgc cac tgt agt Phe Phe Arg Leu Gly Asn Asn Glu Ala Cys Ser Ser Cys His Cys Ser 355	360	365	1104
cct gtg ggc tct cta agc aca cag tgt gat agt tac ggc aga tgc agc Pro Val Gly Ser Leu Ser Thr Gln Cys Asp Ser Tyr Gly Arg Cys Ser 370	375	380	1152
tgt aag cca gga gtg atg ggg gac aaa tgt gac cgt tgc cag cct gga Cys Lys Pro Gly Val Met Gly Asp Lys Cys Asp Arg Cys Gln Pro Gly 385	390	395	1200
ttc cat tct ctc act gaa gca gga tgc agg cca tgc tct tgt gat ccc Phe His Ser Leu Thr Glu Ala Gly Cys Arg Pro Cys Ser Cys Asp Pro 405	410	415	1248
tct ggc agc ata gat gaa tgt aat gtt gaa aca gga aga tgt gtt tgc Ser Gly Ser Ile Asp Glu Cys Asn Val Glu Thr Gly Arg Cys Val Cys 420	425	430	1296
aaa gac aat gtc gaa ggc ttc aat tgt gaa aga tgc aaa cct gga ttt Lys Asp Asn Val Glu Gly Phe Asn Cys Glu Arg Cys Lys Pro Gly Phe 435	440	445	1344
ttt aat ctg gaa tca tct aat cct cgg ggt tgc aca ccc tgc ttc tgc Phe Asn Leu Glu Ser Ser Asn Pro Arg Gly Cys Thr Pro Cys Phe Cys 450	455	460	1392
ttt ggg cat tct tct gtc tgt aca aac gct gtt ggc tac agt gtt tat Phe Gly His Ser Ser Val Cys Thr Asn Ala Val Gly Tyr Ser Val Tyr 465	470	475	1440
tct atc tcc tct acc ttt cag att gat gag gat ggg tgg cgt gcg gaa Ser Ile Ser Ser Thr Phe Gln Ile Asp Glu Asp Gly Trp Arg Ala Glu 485	490	495	1488

cag aga gat ggc tct gaa gca tct ctc gag tgg tcc tct gag agg caa Gln Arg Asp Gly Ser Glu Ala Ser Leu Glu Trp Ser Ser Glu Arg Gln 500 505 510	1536
gat atc gcc gtg atc tca gac agc tac ttt cct cgg tac ttc att gct Asp Ile Ala Val Ile Ser Asp Ser Tyr Phe Pro Arg Tyr Phe Ile Ala 515 520 525	1584
cct gca aag ttc ttg ggc aag cag gtg ttg agt tat ggt cag aac ctc Pro Ala Lys Phe Leu Gly Lys Gln Val Leu Ser Tyr Gly Gln Asn Leu 530 535 540	1632
tcc ttc tcc ttt cga gtg gac agg cga gat act cgc ctc tct gcc gaa Ser Phe Ser Phe Arg Val Asp Arg Arg Asp Thr Arg Leu Ser Ala Glu 545 550 555 560	1680
gac ctt gtg ctt gag gga gct ggc tta aga gta tct gta ccc ttg atc Asp Leu Val Leu Glu Gly Ala Gly Leu Arg Val Ser Val Pro Leu Ile 565 570 575	1728
gct cag ggc aat tcc tat cca agt gag acc act gtg aag tat gtc ttc Ala Gln Gly Asn Ser Tyr Pro Ser Glu Thr Thr Val Lys Tyr Val Phe 580 585 590	1776
agg ctc cat gaa gca aca gat tac cct tgg agg cct gct ctt acc cct Arg Leu His Glu Ala Thr Asp Tyr Pro Trp Arg Pro Ala Leu Thr Pro 595 600 605	1824
ttt gaa ttt cag aag ctc cta aac aac ttg acc tct atc aag ata cgt Phe Glu Phe Gln Lys Leu Asn Asn Leu Thr Ser Ile Lys Ile Arg 610 615 620	1872
ggg aca tac agt gag aga agt gct gga tat ttg gat gat gtc acc ctg Gly Thr Tyr Ser Glu Arg Ser Ala Gly Tyr Leu Asp Asp Val Thr Leu 625 630 635 640	1920
gca agt gct cgt cct ggg cct gga gtc cct gca act tgg gtg gag tcc Ala Ser Ala Arg Pro Gly Pro Gly Val Pro Ala Thr Trp Val Glu Ser 645 650 655	1968
tgc acc tgt cct gtg gga tat gga ggg cag ttt tgt gag atg tgc ctc Cys Thr Cys Pro Val Gly Tyr Gly Gln Phe Cys Glu Met Cys Leu 660 665 670	2016
tca ggt tac aga aga gaa act cct aat ctt gga cca tac agt cca tgt Ser Gly Tyr Arg Arg Glu Thr Pro Asn Leu Gly Pro Tyr Ser Pro Cys 675 680 685	2064
gtg ctt tgc gcc tgc aat gga cac agc gag acc tgt gat cct gag aca Val Leu Cys Ala Cys Asn Gly His Ser Glu Thr Cys Asp Pro Glu Thr 690 695 700	2112
ggt gtt tgt aac tgc aga gac aat acg gct ggc ccg cac tgt gag aag Gly Val Cys Asn Cys Arg Asp Asn Thr Ala Gly Pro His Cys Glu Lys 705 710 715 720	2160
tgc agt gat ggg tac tat gga gat tca act gca ggc acc tcc tcc gat Cys Ser Asp Gly Tyr Tyr Gly Asp Ser Thr Ala Gly Thr Ser Ser Asp 725 730 735	2208

TOP SECRET

tgc caa ccc tgt ccg tgt cct gga ggt tca agt tgt gct gtt gtt ccc Cys Gln Pro Cys Pro Cys Pro Gly Gly Ser Ser Cys Ala Val Val Pro 740 745 750	2256
aag aca aag gag gtg gtg tgc acc aac tgt cct act ggc acc act ggt Lys Thr Lys Glu Val Val Cys Thr Asn Cys Pro Thr Gly Thr Thr Gly 755 760 765	2304
aag aga tgt gag ctc tgt gat gat ggc tac ttt gga gac ccc ctg ggt Lys Arg Cys Glu Leu Cys Asp Asp Gly Tyr Phe Gly Asp Pro Leu Gly 770 775 780	2352
aga aac ggc cct gtg aga ctt tgc cgc ctg tgc cag tgc agt gac aac Arg Asn Gly Pro Val Arg Leu Cys Arg Leu Cys Gln Cys Ser Asp Asn 785 790 795 800	2400
atc gat ccc aac gca gtt gga aat tgc aat cgc ttg acg gga gaa tgc Ile Asp Pro Asn Ala Val Gly Asn Cys Asn Arg Leu Thr Gly Glu Cys 805 810 815	2448
ctg aag tgc atc tat aac act gct ggc ttc tat tgt gac cgg tgc aaa Leu Lys Cys Ile Tyr Asn Thr Ala Gly Phe Tyr Cys Asp Arg Cys Lys 820 825 830	2496
gac gga ttt ttt gga aat ccc ctg gct ccc aat cca gca gac aaa tgc Asp Gly Phe Phe Gly Asn Pro Leu Ala Pro Asn Pro Ala Asp Lys Cys 835 840 845	2544
aaa gcc tgc aat tgc aat ccg tat ggg acc atg aag cag cag agc agc Lys Ala Cys Asn Cys Asn Pro Tyr Gly Thr Met Lys Gln Gln Ser Ser 850 855 860	2592
tgt aac ccc gtg acg ggg cag tgt gaa tgt ttg cct cac gtg act ggc Cys Asn Pro Val Thr Gly Gln Cys Glu Cys Leu Pro His Val Thr Gly 865 870 875 880	2640
cag gac tgt ggt gct tgt gac cct gga ttc tac aat ctg cag agt ggg Gln Asp Cys Gly Ala Cys Asp Pro Gly Phe Tyr Asn Leu Gln Ser Gly 885 890 895	2688
caa ggc tgt gag agg tgt gac tgc cat gcc ttg ggc tcc acc aat ggg Gln Gly Cys Glu Arg Cys Asp Cys His Ala Leu Gly Ser Thr Asn Gly 900 905 910	2736
cag tgt gac atc cgc acc ggc cag tgt gag tgc cag ccc ggc atc act Gln Cys Asp Ile Arg Thr Gly Gln Cys Glu Cys Gln Pro Gly Ile Thr 915 920 925	2784
ggt cag cac tgt gag cgc tgt gag gtc aac cac ttt ggg ttt gga cct Gly Gln His Cys Glu Arg Cys Glu Val Asn His Phe Gly Phe Gly Pro 930 935 940	2832
gaa ggc tgc aaa ccc tgt gac tgt cat cct gag gga tct ctt tca ctt Glu Gly Cys Lys Pro Cys Asp Cys His Pro Glu Gly Ser Leu Ser Leu 945 950 955 960	2880
cag tgc aaa gat gat ggt cgc tgt gaa tgc aga gaa ggc ttt gtg gga Gln Cys Lys Asp Asp Gly Arg Cys Glu Cys Arg Glu Gly Phe Val Gly 965 970 975	2928
aat cgc tgt gac cag tgt gaa gaa aac tat ttc tac aat cgg tct tgg	2976

TOP SECRET

Asn Arg Cys Asp Gln Cys Glu Glu Asn Tyr Phe Tyr Asn Arg Ser Trp 980	985	990		
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gtt gct gat cat aga gtg aag ctc cag gaa tta gag agt ctc ata gca Val Ala Asp His Arg Val Lys Leu Gln Glu Leu Ser Leu Ile Ala 1010	1015	1020	3072	
aac ctt gga act ggg gat gag atg gtg aca gat caa gcc ttc gag gat Asn Leu Gly Thr Gly Asp Glu Met Val Thr Asp Gln Ala Phe Glu Asp 1025	1030	1035	1040	3120
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cag gat gtc aaa gat gtt gac cag aat ttg atg gat cgc cta cag aga Gln Asp Val Lys Asp Val Asp Gln Asn Leu Met Asp Arg Leu Gln Arg 1060	1065	1070		3216
gtg aat aac act ctg tcc agc caa att agc cgt tta cag aat atc cgg Val Asn Asn Thr Leu Ser Ser Gln Ile Ser Arg Leu Gln Asn Ile Arg 1075	1080	1085		3264
aat acc att gaa gag act gga aac ttg gct gaa caa gcg cgt gcc cat Asn Thr Ile Glu Glu Thr Gly Asn Leu Ala Glu Gln Ala Arg Ala His 1090	1095	1100		3312
gta gag aac aca gag cgg ttg att gaa atc gca tcc aga gaa ctt gag Val Glu Asn Thr Glu Arg Leu Ile Glu Ile Ala Ser Arg Glu Leu Glu 1105	1110	1115	1120	3360
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ctt gct gaa cgt cat aaa cag gaa gct gat gac att gtt cga gtg gca Leu Ala Glu Arg His Lys Gln Glu Ala Asp Asp Ile Val Arg Val Ala 1155	1160	1165		3504
aag aca gcc aat gat acg tca act gag gca tac aac ctg ctt ctg agg Lys Thr Ala Asn Asp Thr Ser Thr Glu Ala Tyr Asn Leu Leu Arg 1170	1175	1180		3552
aca ctg gca gga gaa aat caa aca gca ttt gag att gaa gag ctt aat Thr Leu Ala Gly Glu Asn Gln Thr Ala Phe Glu Ile Glu Glu Leu Asn 1185	1190	1195	1200	3600
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gct gcc cga gta cat gag gag gcc aaa agg gcc ggt gac aaa gct gtg Ala Ala Arg Val His Glu Glu Ala Lys Arg Ala Gly Asp Lys Ala Val				3696

FOLIATE

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3792			
caa ctg att gac cag aaa tta aaa gat tat gag gac ctc aga gaa gat Gln Leu Ile Asp Gln Lys Leu Lys Asp Tyr Glu Asp Leu Arg Glu Asp	1265	1270	1275
3840			
atg aga ggg aag gaa ctt gaa gtc aag aac ctt ctg gag aaa ggc aag Met Arg Gly Lys Glu Leu Glu Val Lys Asn Leu Leu Glu Lys Gly Lys	1285	1290	1295
3888			
act gaa cag cag acc gca gac caa ctc cta gcc cga gct gat gct gcc Thr Glu Gln Gln Thr Ala Asp Gln Leu Leu Ala Arg Ala Asp Ala Ala	1300	1305	1310
3936			
aag gcc ctc gct gaa gaa gct gca aag aag gga cgg gat acc tta caa Lys Ala Leu Ala Glu Glu Ala Ala Lys Lys Gly Arg Asp Thr Leu Gln	1315	1320	1325
3984			
gaa gct aat gac att ctc aac aac ctg aaa gat ttt gat agg cgc gtg Glu Ala Asn Asp Ile Leu Asn Asn Leu Lys Asp Phe Asp Arg Arg Val	1330	1335	1340
4032			
aac gat aac aag acg gcc gca gag gag gca cta agg aag att cct gcc Asn Asp Asn Lys Thr Ala Ala Glu Ala Leu Arg Lys Ile Pro Ala	1345	1350	1355
4080			
atc aac cag acc atc act gaa gcc aat gaa aag acc aga gaa gcc cag Ile Asn Gln Thr Ile Thr Glu Ala Asn Glu Lys Thr Arg Glu Ala Gln	1365	1370	1375
4128			
cag gcc ctg ggc agt gct gcg gcg gat gcc aca gag gcc aag aac aag Gln Ala Leu Gly Ser Ala Ala Asp Ala Thr Glu Ala Lys Asn Lys	1380	1385	1390
4176			
gcc cat gag gcg gag agg atc gca agc gct gtc caa aag aat gcc acc Ala His Glu Ala Glu Arg Ile Ala Ser Ala Val Gln Lys Asn Ala Thr	1395	1400	1405
4224			
agc acc aag gca gaa gct gaa aga act ttt gca gaa gtt aca gat ctg Ser Thr Lys Ala Glu Ala Glu Arg Thr Phe Ala Glu Val Thr Asp Leu	1410	1415	1420
4272			
gat aat gag gtg aac aat atg ttg aag caa ctg cag gaa gca gaa aaa Asp Asn Glu Val Asn Asn Met Leu Lys Gln Leu Gln Glu Ala Glu Lys	1425	1430	1435
4320			
1440			
gag cta aag aga aaa caa gat gac gct gac cag gac atg atg atg gca Glu Leu Lys Arg Lys Gln Asp Asp Ala Asp Gln Asp Met Met Met Ala	1445	1450	1455
4368			
ggg atg gct tca cag gct gct caa gaa gcc gag atc aat gcc aga aaa Gly Met Ala Ser Gln Ala Ala Gln Glu Ala Glu Ile Asn Ala Arg Lys	1460	1465	1470
4416			

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 Ala Lys Asn Ser Val Thr Ser Leu Leu Ser Ile Ile Asn Asp Leu Leu
 1475 1480 1485

 gag cag ctg ggg cag ctg gat aca gtg gac ctg aat aag cta aac gag 4512
 Glu Gln Leu Gly Gln Leu Asp Thr Val Asp Leu Asn Lys Leu Asn Glu
 1490 1495 1500

 att gaa ggc acc cta aac aaa gcc aaa gat gaa atg aag gtc agc gat 4560
 Ile Glu Gly Thr Leu Asn Lys Ala Lys Asp Glu Met Lys Val Ser Asp
 1505 1510 1515 1520

 ctt gat agg aaa gtg tot gac ctg gag aat gaa gcc aag aag cag gag 4608
 Leu Asp Arg Lys Val Ser Asp Leu Glu Asn Glu Ala Lys Lys Gln Glu
 1525 1530 1535

 gct gcc atc atg gac tat aac cga gat atc gag gag atc atg aag gac 4656
 Ala Ala Ile Met Asp Tyr Asn Arg Asp Ile Glu Glu Ile Met Lys Asp
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 Ile Arg Asn Leu Glu Asp Ile Arg Lys Thr Leu Pro Ser Gly Cys Phe
 1555 1560 1565

 aac acc ccg tcc att gaa aag ccc tagtgtcttt agggctggaa ggcagcatcc 4758
 Asn Thr Pro Ser Ile Glu Lys Pro
 1570 1575

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 agaccccccac tcctctgctg ctgtccatca ctgtcccttt gaaccaggaa aagtccacaga 4878

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 35 40 45

 Val Thr Gly Val Thr Lys Ser Cys His Leu Cys Asp Ala Gly Gln Pro
 50 55 60

 His Leu Gln His Gly Ala Ala Phe Leu Thr Asp Tyr Asn Asn Gln Ala
 65 70 80

 Asp Thr Thr Trp Trp Gln Ser Gln Thr Met Leu Ala Gly Val Gln Tyr
 85 90 95

Pro Ser Ser Ile Asn Leu Thr Leu His Leu Gly Lys Ala Phe Asp Ile
 100 105 110

 Thr Tyr Val Arg Leu Lys Phe His Thr Ser Arg Pro Glu Ser Phe Ala
 115 120 125

 Ile Tyr Lys Arg Thr Arg Glu Asp Gly Pro Trp Ile Pro Tyr Gln Tyr
 130 135 140

 Tyr Ser Gly Ser Cys Glu Asn Thr Tyr Ser Lys Ala Asn Arg Gly Phe
 145 150 155 160

 Ile Arg Thr Gly Gly Asp Glu Gln Gln Ala Leu Cys Thr Asp Glu Phe
 165 170 175

 Ser Asp Ile Ser Pro Leu Thr Gly Gly Asn Val Ala Phe Ser Thr Leu
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 Glu Trp Val Thr Ala Thr Asp Ile Arg Val Thr Leu Asn Arg Leu Asn
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 Tyr Tyr Ala Ile Ser Asp Phe Ala Val Gly Gly Arg Cys Lys Cys Asn
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 Gly His Ala Ser Glu Cys Met Lys Asn Glu Phe Asp Lys Leu Val Cys
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 Asn Cys Lys His Asn Thr Tyr Gly Val Asp Cys Glu Lys Cys Leu Pro
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 Asp Pro Glu Leu Tyr Arg Ser Thr Gly His Gly Gly His Cys Thr Asn
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 Cys Gln Asp Asn Thr Asp Gly Ala His Cys Glu Arg Cys Arg Glu Asn
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 Cys Lys Pro Gly Val Met Gly Asp Lys Cys Asp Arg Cys Gln Pro Gly
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TOELETTED

Ser Gly Ser Ile Asp Glu Cys Asn Val Glu Thr Gly Arg Cys Val Cys
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 Lys Asp Asn Val Glu Gly Phe Asn Cys Glu Arg Cys Lys Pro Gly Phe
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 Gly Thr Tyr Ser Glu Arg Ser Ala Gly Tyr Leu Asp Asp Val Thr Leu
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 Ser Gly Tyr Arg Arg Glu Thr Pro Asn Leu Gly Pro Tyr Ser Pro Cys
 675 680 685
 Val Leu Cys Ala Cys Asn Gly His Ser Glu Thr Cys Asp Pro Glu Thr
 690 695 700
 Gly Val Cys Asn Cys Arg Asp Asn Thr Ala Gly Pro His Cys Glu Lys
 705 710 715 720
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TOP SECRET//NOFORN

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745

750

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785 790 795 800

Ile Asp Pro Asn Ala Val Gly Asn Cys Asn Arg Leu Thr Gly Glu Cys
805 810 815

Leu Lys Cys Ile Tyr Asn Thr Ala Gly Phe Tyr Cys Asp Arg Cys Lys
820 825 830

Asp Gly Phe Phe Gly Asn Pro Leu Ala Pro Asn Pro Ala Asp Lys Cys
835 840 845

Lys Ala Cys Asn Cys Asn Pro Tyr Gly Thr Met Lys Gln Gln Ser Ser
850 855 860

Cys Asn Pro Val Thr Gly Gln Cys Glu Cys Leu Pro His Val Thr Gly
865 870 875 880

Gln Asp Cys Gly Ala Cys Asp Pro Gly Phe Tyr Asn Leu Gln Ser Gly
885 890 895

Gln Gly Cys Glu Arg Cys Asp Cys His Ala Leu Gly Ser Thr Asn Gly
900 905 910

Gln Cys Asp Ile Arg Thr Gly Gln Cys Glu Cys Gln Pro Gly Ile Thr
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Gly Gln His Cys Glu Arg Cys Glu Val Asn His Phe Gly Phe Gly Pro
930 935 940

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Asn Arg Cys Asp Gln Cys Glu Glu Asn Tyr Phe Tyr Asn Arg Ser Trp
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Pro Gly Cys Gln Glu Cys Pro Ala Cys Tyr Arg Leu Val Lys Asp Lys
995 1000 1005

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 Gln Ala Leu Gly Ser Ala Ala Ala Asp Ala Thr Glu Ala Lys Asn Lys
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PROTEIN INFORMATION

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 Ser Thr Lys Ala Glu Ala Glu Arg Thr Phe Ala Glu Val Thr Asp Leu
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 Glu Leu Lys Arg Lys Gln Asp Asp Ala Asp Gln Asp Met Met Ala
 1445 1450 1455
 Gly Met Ala Ser Gln Ala Ala Gln Glu Ala Glu Ile Asn Ala Arg Lys
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 Ala Lys Asn Ser Val Thr Ser Leu Leu Ser Ile Ile Asn Asp Leu Leu
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 ggccctcggtta tacgcccgtta ggcgagtgtca ggcggccacc ccagcctttg ccgaggggcc 180
 cgccgcagcg gg atg acg ggc ggc ggg cgg gcc ggc ctg gtc ctg cag ccc 231
 Met Thr Gly Gly Arg Ala Ala Leu Ala Leu Gln Pro
 1 5 10

TOP SECRET

cgg ggg cgg ctg tgg ccg ctg ttg gct gtg ctg gcg gct gtg gcg ggc Arg Gly Arg Leu Trp Pro Leu Leu Ala Val Leu Ala Ala Val Ala Gly	15	20	25	279	
tgt gtc cgg gcg gcc atg gac gag tgc gcg gat gag ggc ggg cgg ccg Cys Val Arg Ala Ala Met Asp Glu Cys Ala Asp Glu Gly Gly Arg Pro	30	35	40	45	327
cag cgc tgc atg ccg gag ttt gtt aat gcc gcc ttc aat gtg acc gtg Gln Arg Cys Met Pro Glu Phe Val Asn Ala Ala Phe Asn Val Thr Val	50	55	60	375	
gtg gct acc aac acg tgt ggg act ccg ccc gag gag tac tgc gtg cag Val Ala Thr Asn Thr Cys Gly Thr Pro Pro Glu Glu Tyr Cys Val Gln	65	70	75	423	
act ggg gtg acc gga gtc act aag tcc tgt cac ctg tgc gac gcc ggc Thr Gly Val Thr Gly Val Thr Lys Ser Cys His Leu Cys Asp Ala Gly	80	85	90	471	
cag cag cac ctg caa cac ggg gca gcc ttc ctg acc gac tac aac aac Gln Gln His Leu Gln His Gly Ala Ala Phe Leu Thr Asp Tyr Asn Asn	95	100	105	519	
cag gcc gac acc acc tgg tgg caa agc cag act atg ctg gcc ggg gtg Gln Ala Asp Thr Thr Trp Trp Gln Ser Gln Thr Met Leu Ala Gly Val	110	115	120	125	567
cag tac ccc aac tcc atc aac ctc acg ctg cac ctg gga aag gct ttt Gln Tyr Pro Asn Ser Ile Asn Leu Thr Leu His Leu Gly Lys Ala Phe	130	135	140	615	
gac atc act tac gtg cgc ctc aag ttc cac acc agc cgt cca gag agc Asp Ile Thr Tyr Val Arg Leu Lys Phe His Thr Ser Arg Pro Glu Ser	145	150	155	663	
ttc gcc atc tat aag cgc act cgg gaa gac ggg ccc tgg att cct tat Phe Ala Ile Tyr Lys Arg Thr Arg Glu Asp Gly Pro Trp Ile Pro Tyr	160	165	170	711	
cag tac tac agt ggg tcc tgt gag aac acg tac tca aag gct aac cgt Gln Tyr Tyr Ser Gly Ser Cys Glu Asn Thr Tyr Ser Lys Ala Asn Arg	175	180	185	759	
ggc ttc atc agg acc gga ggg gac gag cag cag gcc ttg tgt act gat Gly Phe Ile Arg Thr Gly Gly Asp Glu Gln Gln Ala Leu Cys Thr Asp	190	195	200	205	807
gaa ttc agt gac att tcc ccc ctc acc ggt ggc aac gtg gcc ttt tca Glu Phe Ser Asp Ile Ser Pro Leu Thr Gly Gly Asn Val Ala Phe Ser	210	215	220	855	
acc ctg gaa gga cgg ccg agt gcc tac aac ttt gac aac agc cct gtg Thr Leu Glu Gly Arg Pro Ser Ala Tyr Asn Phe Asp Asn Ser Pro Val	225	230	235	903	
ctc cag gaa tgg gta act gcc act gac atc aga gtg acg ctc aat cgc Leu Gln Glu Trp Val Thr Ala Thr Asp Ile Arg Val Thr Leu Asn Arg	240	245	250	951	
ctg aac acc ttt gga gat gaa gtg ttt aac gac ccc aaa gtt ctc aag				999	

TRANSLATED SEQUENCE

Leu Asn Thr Phe Gly Asp Glu Val Phe Asn Asp Pro Lys Val Leu Lys			
255	260	265	
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Ser Tyr Tyr Tyr Ala Ile Ser Asp Phe Ala Val Gly Gly Arg Cys Lys			
270	275	280	285
tgt aac gga cat gcc agc gag tgt gta aag aac gag ttt gac aaa ctc			1095
Cys Asn Gly His Ala Ser Glu Cys Val Lys Asn Glu Phe Asp Lys Leu			
290	295	300	
atg tgc aac tgc aaa cat aac aca tac gga gtt gac tgt gaa aag tgc			1143
Met Cys Asn Cys Lys His Asn Thr Tyr Gly Val Asp Cys Glu Lys Cys			
305	310	315	
ctg cct ttc ttc aat gac cgg ccg tgg agg agg gcg act gct gag agc			1191
Leu Pro Phe Phe Asn Asp Arg Pro Trp Arg Arg Ala Thr Ala Glu Ser			
320	325	330	
gcc agc gag tgc ctt cct tgt gac tgc aat ggc cga tcc caa gag tgc			1239
Ala Ser Glu Cys Leu Pro Cys Asp Cys Asn Gly Arg Ser Gln Glu Cys			
335	340	345	
tac ttt gat cct gaa cta tac cgt tcc act gga cat ggt ggc cac tgt			1287
Tyr Phe Asp Pro Glu Leu Tyr Arg Ser Thr Gly His Gly Gly His Cys			
350	355	360	365
acc aac tgc cgg gat aac aca gat ggt gcc aag tgc gag agg tgc cgg			1335
Thr Asn Cys Arg Asp Asn Thr Asp Gly Ala Lys Cys Glu Arg Cys Arg			
370	375	380	
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Glu Asn Phe Phe Arg Leu Gly Asn Thr Glu Ala Cys Ser Pro Cys His			
385	390	395	
tgc agc cct gtt ggt tct ctc agc aca cag tgt gac agt tac ggc aga			1431
Cys Ser Pro Val Gly Ser Leu Ser Thr Gln Cys Asp Ser Tyr Gly Arg			
400	405	410	
tgc agc tgt aag cca gga gtg atg ggt gac aag tgt gac cgt tgt cag			1479
Cys Ser Cys Lys Pro Gly Val Met Gly Asp Lys Cys Asp Arg Cys Gln			
415	420	425	
cct ggg ttc cat tcc ctc act gag gca gga tgc agg cca tgc tcc tgc			1527
Pro Gly Phe His Ser Leu Thr Glu Ala Gly Cys Arg Pro Cys Ser Cys			
430	435	440	445
gat cct tcg ggc agc aca gac gag tgt aat gtt gaa aca gga aga tgc			1575
Asp Pro Ser Gly Ser Thr Asp Glu Cys Asn Val Glu Thr Gly Arg Cys			
450	455	460	
gtt tgc aaa gac aat gtt gaa ggc ttc aac tgt gag aga tgc aaa cct			1623
Val Cys Lys Asp Asn Val Glu Gly Phe Asn Cys Glu Arg Cys Lys Pro			
465	470	475	
gga ttt ttt aat ctg gag tca tct aat cct aag ggc tgc aca ccc tgc			1671
Gly Phe Asn Leu Glu Ser Ser Asn Pro Lys Gly Cys Thr Pro Cys			
480	485	490	
ttc tgc ttt ggc cat tct tct gtg tgc aca aat gct gtt ggc tac agt			1719
Phe Cys Phe Gly His Ser Ser Val Cys Thr Asn Ala Val Gly Tyr Ser			

400 399 398 397 396 395 394 393 392 391 390 389 388 387 386 385 384 383 382 381 380 379 378 377 376 375 374 373 372 371 370 369 368 367 366 365 364 363 362 361 360 359 358 357 356 355 354 353 352 351 350 349 348 347 346 345 344 343 342 341 340 339 338 337 336 335 334 333 332 331 330 329 328 327 326 325 324 323 322 321 320 319 318 317 316 315 314 313 312 311 310 309 308 307 306 305 304 303 302 301 300 299 298 297 296 295 294 293 292 291 290 289 288 287 286 285 284 283 282 281 280 279 278 277 276 275 274 273 272 271 270 269 268 267 266 265 264 263 262 261 260 259 258 257 256 255 254 253 252 251 250 249 248 247 246 245 244 243 242 241 240 239 238 237 236 235 234 233 232 231 230 229 228 227 226 225 224 223 222 221 220 219 218 217 216 215 214 213 212 211 210 209 208 207 206 205 204 203 202 201 200 199 198 197 196 195 194 193 192 191 190 189 188 187 186 185 184 183 182 181 180 179 178 177 176 175 174 173 172 171 170 169 168 167 166 165 164 163 162 161 160 159 158 157 156 155 154 153 152 151 150 149 148 147 146 145 144 143 142 141 140 139 138 137 136 135 134 133 132 131 130 129 128 127 126 125 124 123 122 121 120 119 118 117 116 115 114 113 112 111 110 109 108 107 106 105 104 103 102 101 100 99 98 97 96 95 94 93 92 91 90 89 88 87 86 85 84 83 82 81 80 79 78 77 76 75 74 73 72 71 70 69 68 67 66 65 64 63 62 61 60 59 58 57 56 55 54 53 52 51 50 49 48 47 46 45 44 43 42 41 40 39 38 37 36 35 34 33 32 31 30 29 28 27 26 25 24 23 22 21 20 19 18 17 16 15 14 13 12 11 10 9 8 7 6 5 4 3 2 1

495	500	505	
gtt tat gac atc tcc tcc acc ttt cag att gat gag gat ggg tgg cgc Val Tyr Asp Ile Ser Ser Thr Phe Gln Ile Asp Glu Asp Gly Trp Arg 510 515 520 525			1767
gtg gag cag aga gat ggc tcg gag gcg tct ctg gag tgg tcc tca gac Val Glu Gln Arg Asp Gly Ser Ala Ser Leu Glu Trp Ser Ser Asp 530 535 540			1815
agg caa tat att gcc gta atc tca gac agt tac ttt cct aga tac ttc Arg Gln Tyr Ile Ala Val Ile Ser Asp Ser Tyr Phe Pro Arg Tyr Phe 545 550 555			1863
atc gcc cct gtg aag ttc ctg ggc aac cag gtc ctg agt tat ggg cag Ile Ala Pro Val Lys Phe Leu Gly Asn Gln Val Leu Ser Tyr Gly Gln 560 565 570			1911
aat ctt tcc ttc tcc ttc cga gtg gac aga cga gac act cgc ctc tcc Asn Leu Ser Phe Ser Phe Arg Val Asp Arg Arg Asp Thr Arg Leu Ser 575 580 585			1959
gca gag gac ctt gtg ctc gaa gga gct ggc ttg aga gta tcc gtg ccc Ala Glu Asp Leu Val Leu Glu Gly Ala Gly Leu Arg Val Ser Val Pro 590 595 600 605			2007
ttg atc gct cag ggc aac tcc tac ccc agc gag acc act gtg aag tac Leu Ile Ala Gln Gly Asn Ser Tyr Pro Ser Glu Thr Thr Val Lys Tyr 610 615 620			2055
atc ttc agg ctc cat gaa gca acg gat tac cct tgg agg ccc gct ctc Ile Phe Arg Leu His Glu Ala Thr Asp Tyr Pro Trp Arg Pro Ala Leu 625 630 635			2103
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ccg tgt gtg ctc tgt acc tgt aat ggg cac agt gag acc tgt gac ccg Pro Cys Val Leu Cys Thr Cys Asn Gly His Ser Glu Thr Cys Asp Pro 720 725 730			2391
gag aca ggt gtc tgt gac tgc aga gac aat aca gcc ggc ccc cac tgt Glu Thr Gly Val Cys Asp Cys Arg Asp Asn Thr Ala Gly Pro His Cys 735 740 745			2439

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 750 755 760 765

 tct gac tgc cag cct tgt ccc tgc ccc ggt ggc tca agt tgt gcc att 2535
 Ser Asp Cys Gln Pro Cys Pro Cys Pro Gly Ser Ser Cys Ala Ile
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 Val Pro Lys Thr Lys Glu Val Val Cys Thr His Cys Pro Thr Gly Thr
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 gcc ggc aag aga tgt gaa ctc tgt gat gac ggc tac ttt gga gac cct 2631
 Ala Gly Lys Arg Cys Glu Leu Cys Asp Asp Gly Tyr Phe Gly Asp Pro
 800 805 810

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 Leu Gly Ser Asn Gly Pro Val Arg Leu Cys Arg Pro Cys Gln Cys Asn
 815 820 825

 gac aac ata gac ccc aac gcg gtt ggc aac tgc aac cgc ctg acg ggc 2727
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 Glu Cys Leu Lys Cys Ile Tyr Asn Thr Ala Gly Phe Tyr Cys Asp Arg
 850 855 860

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 865 870 875

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 880 885 890

 agc tgt aac ccg gtg acc gga caa tgc cag tgt ctg cct cat gtg tct 2919
 Ser Cys Asn Pro Val Thr Gly Gln Cys Gln Cys Leu Pro His Val Ser
 895 900 905

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 Gly Arg Asp Cys Gly Thr Cys Asp Pro Gly Tyr Tyr Asn Leu Gln Ser
 910 915 920 925

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 930 935 940

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 Gly Gln Cys Asp Ile Arg Thr Gly Gln Cys Glu Cys Gln Pro Gly Ile
 945 950 955

 acc ggt cag cac tgt gag cgc tgt gag acc aac cac ttt ggg ttt gga 3111
 Thr Gly Gln His Cys Glu Arg Cys Glu Thr Asn His Phe Gly Phe Gly
 960 965 970

 cct gaa ggc tgc aaa cct tgt gac tgt cac cat gaa gga tcc ctt tcg 3159
 Pro Glu Gly Cys Lys Pro Cys Asp Cys His His Glu Gly Ser Leu Ser
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ESTERASE

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acc ctg gca gga gaa aatcaa act gcg ctg gag att gaa gaa ctt aac Thr Leu Ala Gly Glu Asn Gln Thr Ala Leu Glu Ile Glu Glu Leu Asn 1215 1220 1225	3879
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Glu Ile Tyr Ala Ser Val Ala Gln Leu Thr Pro Val Asp Ser Glu Ala				
1265		1270	1275	
ctg gag aat gaa gca aat aaa atc aag aaa gaa gct gca gac ctg gac				4071
Leu Glu Asn Glu Ala Asn Lys Ile Lys Lys Glu Ala Ala Asp Leu Asp				
1280		1285	1290	
cgt ctg att gac cag aag cta aag gat tac gag gac ctc agg gaa gac				4119
Arg Leu Ile Asp Gln Lys Leu Lys Asp Tyr Glu Asp Leu Arg Glu Asp				
1295		1300	1305	
atg aga gga aag gaa cat gaa gtg aag aac ctt cta gag aag ggg aaa				4167
Met Arg Gly Lys Glu His Glu Val Lys Asn Leu Leu Glu Lys Gly Lys				
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gct gaa cag cag acc gcc gac caa ctc cta gct cga gcc gat gct gcc				4215
Ala Glu Gln Gln Thr Ala Asp Gln Leu Leu Ala Arg Ala Asp Ala Ala				
1330		1335	1340	
aag gcc ctt gct gaa gaa gct gct aag aag gga cgc agt acc tta caa				4263
Lys Ala Leu Ala Glu Glu Ala Ala Lys Lys Gly Arg Ser Thr Leu Gln				
1345		1350	1355	
gaa gcc aat gac att ctc aac aac ctg aaa gat ttt gat aga cgt gtg				4311
Glu Ala Asn Asp Ile Leu Asn Asn Leu Lys Asp Phe Asp Arg Arg Val				
1360		1365	1370	
aac gat aac aag aca gcc gcg gaa gaa gct cta agg aga att ccc gcc				4359
Asn Asp Asn Lys Thr Ala Ala Glu Glu Ala Leu Arg Arg Ile Pro Ala				
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atc aac cgg acc ata gct gaa gcc aat gag aag aca agg gag gcc cag				4407
Ile Asn Arg Thr Ile Ala Glu Ala Asn Glu Lys Thr Arg Glu Ala Gln				
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cta gcg ctg ggc aat gct gcc gct gac gcc acg gag gcc aag aac aag				4455
Leu Ala Leu Gly Asn Ala Ala Asp Ala Thr Glu Ala Lys Asn Lys				
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gcc cat gag gca gag agg atc gcc agc gcc gcg cag aag aat gcc acc				4503
Ala His Glu Ala Glu Arg Ile Ala Ser Ala Ala Gln Lys Asn Ala Thr				
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agt acc aag gcg gac gca gaa aga acc ttc ggg gaa gtt aca gat ctg				4551
Ser Thr Lys Ala Asp Ala Glu Arg Thr Phe Gly Glu Val Thr Asp Leu				
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gat aat gag gtg aac ggt atg ctg agg cag cta gag gag gca gag aat				4599
Asp Asn Glu Val Asn Gly Met Leu Arg Gln Leu Glu Glu Ala Glu Asn				
1455		1460	1465	
gag ctg aag agg aag caa gat gac gcc gac cag gac atg atg atg gcg				4647
Glu Leu Lys Arg Lys Gln Asp Asp Ala Asp Gln Asp Met Met Met Ala				

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1470	1475	1480	1485	
ggg atg gct tcg caa gcc gct cag gag gct gag ctc aat gcc aga aag Gly Met Ala Ser Gln Ala Ala Gln Glu Ala Glu Leu Asn Ala Arg Lys	1490	1495	1500	4695
gcc aaa aac tct gtc agc agc ctc ctc agc cag ctg aac aac ctc ttg Ala Lys Asn Ser Val Ser Ser Leu Leu Ser Gln Leu Asn Asn Leu Leu	1505	1510	1515	4743
gat cag cta gga cag ctg gac aca gtg gac ctg aac aag ctc aat gag Asp Gln Leu Gly Gln Leu Asp Thr Val Asp Leu Asn Lys Leu Asn Glu	1520	1525	1530	4791
atc gaa ggc tcc ctg aac aaa gcc aaa gac gaa atg aag gcc agc gac Ile Glu Gly Ser Leu Asn Lys Ala Lys Asp Glu Met Lys Ala Ser Asp	1535	1540	1545	4839
ctg gac agg aag gtg tct gac ctg gag agc gag gct cgg aag cag gaa Leu Asp Arg Lys Val Ser Asp Leu Glu Ser Glu Ala Arg Lys Gln Glu	1550	1555	1560	4887
gca gcc atc atg gac tat aac cgg gac ata gca gag atc att aag gat Ala Ala Ile Met Asp Tyr Asn Arg Asp Ile Ala Glu Ile Ile Lys Asp	1570	1575	1580	4935
att cac aac ctg gag gac atc aag aag acc cta cca acc ggc tgc ttc Ile His Asn Leu Glu Asp Ile Lys Thr Leu Pro Thr Gly Cys Phe	1585	1590	1595	4983
aac acc ccg tct atc gag aag ccc tagtggcgag agggctgtaa ggcagtgtcc Asn Thr Pro Ser Ile Glu Lys Pro	1600	1605		5037
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<213> Mus musculus

<400> 18

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Leu Trp Pro Leu Leu Ala Val Leu Ala Ala Val Ala Gly Cys Val Arg
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Ala Ala Met Asp Glu Cys Ala Asp Glu Gly Gly Arg Pro Gln Arg Cys
35 40 45

Met Pro Glu Phe Val Asn Ala Ala Phe Asn Val Thr Val Val Ala Thr
50 55 60

Asn Thr Cys Gly Thr Pro Pro Glu Glu Tyr Cys Val Gln Thr Gly Val
65 70 75 80

Thr Gly Val Thr Lys Ser Cys His Leu Cys Asp Ala Gly Gln Gln His
85 90 95

Leu Gln His Gly Ala Ala Phe Leu Thr Asp Tyr Asn Asn Gln Ala Asp
100 105 110

Thr Thr Trp Trp Gln Ser Gln Thr Met Leu Ala Gly Val Gln Tyr Pro
115 120 125

Asn Ser Ile Asn Leu Thr Leu His Leu Gly Lys Ala Phe Asp Ile Thr
130 135 140

Tyr Val Arg Leu Lys Phe His Thr Ser Arg Pro Glu Ser Phe Ala Ile
145 150 155 160

Tyr Lys Arg Thr Arg Glu Asp Gly Pro Trp Ile Pro Tyr Gln Tyr Tyr
165 170 175

Ser Gly Ser Cys Glu Asn Thr Tyr Ser Lys Ala Asn Arg Gly Phe Ile
180 185 190

Arg Thr Gly Gly Asp Glu Gln Gln Ala Leu Cys Thr Asp Glu Phe Ser
195 200 205

Asp Ile Ser Pro Leu Thr Gly Gly Asn Val Ala Phe Ser Thr Leu Glu
210 215 220

Gly Arg Pro Ser Ala Tyr Asn Phe Asp Asn Ser Pro Val Leu Gln Glu
225 230 235 240

Trp Val Thr Ala Thr Asp Ile Arg Val Thr Leu Asn Arg Leu Asn Thr
245 250 255

Phe Gly Asp Glu Val Phe Asn Asp Pro Lys Val Leu Lys Ser Tyr Tyr
260 265 270

Tyr Ala Ile Ser Asp Phe Ala Val Gly Gly Arg Cys Lys Cys Asn Gly
275 280 285

His Ala Ser Glu Cys Val Lys Asn Glu Phe Asp Lys Leu Met Cys Asn
290 295 300

Cys Lys His Asn Thr Tyr Gly Val Asp Cys Glu Lys Cys Leu Pro Phe

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Phe Asn Asp Arg Pro Trp Arg Arg Ala Thr Ala Glu Ser Ala Ser Glu			
325	330	335	
Cys Leu Pro Cys Asp Cys Asn Gly Arg Ser Gln Glu Cys Tyr Phe Asp			
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Pro Glu Leu Tyr Arg Ser Thr Gly His Gly Gly His Cys Thr Asn Cys			
355	360	365	
Arg Asp Asn Thr Asp Gly Ala Lys Cys Glu Arg Cys Arg Glu Asn Phe			
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Phe Arg Leu Gly Asn Thr Glu Ala Cys Ser Pro Cys His Cys Ser Pro			
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Val Gly Ser Leu Ser Thr Gln Cys Asp Ser Tyr Gly Arg Cys Ser Cys			
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Lys Pro Gly Val Met Gly Asp Lys Cys Asp Arg Cys Gln Pro Gly Phe			
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His Ser Leu Thr Glu Ala Gly Cys Arg Pro Cys Ser Cys Asp Pro Ser			
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Gly Ser Thr Asp Glu Cys Asn Val Glu Thr Gly Arg Cys Val Cys Lys			
450	455	460	
Asp Asn Val Glu Gly Phe Asn Cys Glu Arg Cys Lys Pro Gly Phe Phe			
465	470	475	480
Asn Leu Glu Ser Ser Asn Pro Lys Gly Cys Thr Pro Cys Phe Cys Phe			
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Gly His Ser Ser Val Cys Thr Asn Ala Val Gly Tyr Ser Val Tyr Asp			
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Ile Ser Ser Thr Phe Gln Ile Asp Glu Asp Gly Trp Arg Val Glu Gln			
515	520	525	
Arg Asp Gly Ser Glu Ala Ser Leu Glu Trp Ser Ser Asp Arg Gln Tyr			
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Ile Ala Val Ile Ser Asp Ser Tyr Phe Pro Arg Tyr Phe Ile Ala Pro			
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Val Lys Phe Leu Gly Asn Gln Val Leu Ser Tyr Gly Gln Asn Leu Ser			
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Phe Ser Phe Arg Val Asp Arg Arg Asp Thr Arg Leu Ser Ala Glu Asp			
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Leu Val Leu Glu Gly Ala Gly Leu Arg Val Ser Val Pro Leu Ile Ala			
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Gln Gly Asn Ser Tyr Pro Ser Glu Thr Thr Val Lys Tyr Ile Phe Arg			
610	615	620	
Leu His Glu Ala Thr Asp Tyr Pro Trp Arg Pro Ala Leu Ser Pro Phe			
625	630	635	640

Glu Phe Gln Lys Leu Leu Asn Asn Leu Thr Ser Ile Lys Ile Arg Gly
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 Thr Tyr Ser Glu Arg Ser Ala Gly Tyr Leu Asp Asp Val Thr Leu Gln
 660 665 670
 Ser Ala Arg Pro Gly Pro Gly Val Pro Ala Thr Trp Val Glu Ser Cys
 675 680 685
 Thr Cys Pro Val Gly Tyr Gly Gln Phe Cys Glu Thr Cys Leu Pro
 690 695 700
 Gly Tyr Arg Arg Glu Thr Pro Ser Leu Gly Pro Tyr Ser Pro Cys Val
 705 710 715 720
 Leu Cys Thr Cys Asn Gly His Ser Glu Thr Cys Asp Pro Glu Thr Gly
 725 730 735
 Val Cys Asp Cys Arg Asp Asn Thr Ala Gly Pro His Cys Glu Lys Cys
 740 745 750
 Ser Asp Gly Tyr Tyr Gly Asp Ser Thr Leu Gly Thr Ser Ser Asp Cys
 755 760 765
 Gln Pro Cys Pro Cys Pro Gly Gly Ser Ser Cys Ala Ile Val Pro Lys
 770 775 780
 Thr Lys Glu Val Val Cys Thr His Cys Pro Thr Gly Thr Ala Gly Lys
 785 790 795 800
 Arg Cys Glu Leu Cys Asp Asp Gly Tyr Phe Gly Asp Pro Leu Gly Ser
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 820 825 830
 Asp Pro Asn Ala Val Gly Asn Cys Asn Arg Leu Thr Gly Glu Cys Leu
 835 840 845
 Lys Cys Ile Tyr Asn Thr Ala Gly Phe Tyr Cys Asp Arg Cys Lys Glu
 850 855 860
 Gly Phe Phe Gly Asn Pro Leu Ala Pro Asn Pro Ala Asp Lys Cys Lys
 865 870 875 880
 Ala Cys Ala Cys Asn Tyr Gly Thr Val Gln Gln Gln Ser Ser Cys Asn
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 Pro Val Thr Gly Gln Cys Gln Cys Leu Pro His Val Ser Gly Arg Asp
 900 905 910
 Cys Gly Thr Cys Asp Pro Gly Tyr Tyr Asn Leu Gln Ser Gly Gln Gly
 915 920 925
 Cys Glu Arg Cys Asp Cys His Ala Leu Gly Ser Thr Asn Gly Gln Cys
 930 935 940
 Asp Ile Arg Thr Gly Gln Cys Glu Cys Gln Pro Gly Ile Thr Gly Gln
 945 950 955 960

His Cys Glu Arg Cys Glu Thr Asn His Phe Gly Phe Gly Pro Glu Gly
 965 970 975
 Cys Lys Pro Cys Asp Cys His His Glu Gly Ser Leu Ser Leu Gln Cys
 980 985 990
 Lys Asp Asp Gly Arg Cys Glu Cys Arg Glu Gly Phe Val Gly Asn Arg
 995 1000 1005
 Cys Asp Gln Cys Glu Glu Asn Tyr Phe Tyr Asn Arg Ser Trp Pro Gly
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 Cys Gln Glu Cys Pro Ala Cys Tyr Arg Leu Val Lys Asp Lys Ala Ala
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 Glu His Arg Val Lys Leu Gln Glu Leu Glu Ser Leu Ile Ala Asn Leu
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 Gly Thr Gly Asp Asp Met Val Thr Asp Gln Ala Phe Glu Asp Arg Leu
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 Val Lys Asp Val Asp Gln Asn Leu Met Asp Arg Leu Gln Arg Val Asn
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 Ser Ser Leu His Ser Gln Ile Ser Arg Leu Gln Asn Ile Arg Asn Thr
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 Ile Glu Glu Thr Gly Ile Leu Ala Glu Arg Ala Arg Ser Arg Val Glu
 1125 1130 1135
 Ser Thr Glu Gln Leu Ile Glu Ile Ala Ser Arg Glu Leu Glu Lys Ala
 1140 1145 1150
 Lys Met Ala Ala Asn Val Ser Ile Thr Gln Pro Glu Ser Thr Gly Glu
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 Pro Asn Asn Met Thr Leu Leu Ala Glu Glu Ala Arg Arg Leu Ala Glu
 1170 1175 1180
 Arg His Lys Gln Glu Ala Asp Asp Ile Val Arg Val Ala Lys Thr Ala
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 Asn Glu Thr Ser Ala Glu Ala Tyr Asn Leu Leu Leu Arg Thr Leu Ala
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 Gly Glu Asn Gln Thr Ala Leu Glu Ile Glu Glu Leu Asn Arg Lys Tyr
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 Val His Glu Glu Ala Lys Arg Ala Gly Asp Lys Ala Val Glu Ile Tyr
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 Ala Ser Val Ala Gln Leu Thr Pro Val Asp Ser Glu Ala Leu Glu Asn
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 Glu Ala Asn Lys Ile Lys Lys Glu Ala Ala Asp Leu Asp Arg Leu Ile

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Lys Glu His Glu Val Lys Asn Leu Leu Glu Lys Gly Lys Ala Glu Gln 1315	1320	1325	
Gln Thr Ala Asp Gln Leu Leu Ala Arg Ala Asp Ala Ala Lys Ala Leu 1330	1335	1340	
Ala Glu Glu Ala Ala Lys Lys Gly Arg Ser Thr Leu Gln Glu Ala Asn 1345	1350	1355	1360
Asp Ile Leu Asn Asn Leu Lys Asp Phe Asp Arg Arg Val Asn Asp Asn 1365	1370	1375	
Lys Thr Ala Ala Glu Glu Ala Leu Arg Arg Ile Pro Ala Ile Asn Arg 1380	1385	1390	
Thr Ile Ala Glu Ala Asn Glu Lys Thr Arg Glu Ala Gln Leu Ala Leu 1395	1400	1405	
Gly Asn Ala Ala Ala Asp Ala Thr Glu Ala Lys Asn Lys Ala His Glu 1410	1415	1420	
Ala Glu Arg Ile Ala Ser Ala Ala Gln Lys Asn Ala Thr Ser Thr Lys 1425	1430	1435	1440
Ala Asp Ala Glu Arg Thr Phe Gly Glu Val Thr Asp Leu Asp Asn Glu 1445	1450	1455	
Val Asn Gly Met Leu Arg Gln Leu Glu Ala Glu Asn Glu Leu Lys 1460	1465	1470	
Arg Lys Gln Asp Asp Ala Asp Gln Asp Met Met Met Ala Gly Met Ala 1475	1480	1485	
Ser Gln Ala Ala Gln Glu Ala Glu Leu Asn Ala Arg Lys Ala Lys Asn 1490	1495	1500	
Ser Val Ser Ser Leu Leu Ser Gln Leu Asn Asn Leu Leu Asp Gln Leu 1505	1510	1515	1520
Gly Gln Leu Asp Thr Val Asp Leu Asn Lys Leu Asn Glu Ile Glu Gly 1525	1530	1535	
Ser Leu Asn Lys Ala Lys Asp Glu Met Lys Ala Ser Asp Leu Asp Arg 1540	1545	1550	
Lys Val Ser Asp Leu Glu Ser Glu Ala Arg Lys Gln Glu Ala Ala Ile 1555	1560	1565	
Met Asp Tyr Asn Arg Asp Ile Ala Glu Ile Ile Lys Asp Ile His Asn 1570	1575	1580	
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 Pro Glu Phe Val Asn Ala Ala Phe Asn Val Thr Val Val Ala Thr Asn
 20 25 30

 acg tgt ggg act ccg ccc gag gag tac tgc gtg cag act ggg gtg acc 144
 Thr Cys Gly Thr Pro Pro Glu Glu Tyr Cys Val Gln Thr Gly Val Thr
 35 40 45

 gga gtc act aag tcc tgt cac ctg tgc gac gcc ggc cag cag cac ctg 192
 Gly Val Thr Lys Ser Cys His Leu Cys Asp Ala Gly Gln Gln His Leu
 50 55 60

 caa cac ggg gca gcc ttc ctg acc gac tac aac aac cag gcc gac acc 240
 Gln His Gly Ala Ala Phe Leu Thr Asp Tyr Asn Asn Gln Ala Asp Thr
 65 70 75 80

 acc tgg tgg caa agc cag act atg ctg gcc ggg gtg cag tac ccc aac 288
 Thr Trp Trp Gln Ser Gln Thr Met Leu Ala Gly Val Gln Tyr Pro Asn
 85 90 95

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 Ser Ile Asn Leu Thr Leu His Leu Gly Lys Ala Phe Asp Ile Thr Tyr
 100 105 110

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 Val Arg Leu Lys Phe His Thr Ser Arg Pro Glu Ser Phe Ala Ile Tyr
 115 120 125

 aag cgc act cgg gaa gac ggg ccc tgg att cct tat cag tac tac agt 432
 Lys Arg Thr Arg Glu Asp Gly Pro Trp Ile Pro Tyr Gln Tyr Tyr Ser
 130 135 140

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 Gly Ser Cys Glu Asn Thr Tyr Ser Lys Ala Asn Arg Gly Phe Ile Arg
 145 150 155 160

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 Thr Gly Gly Asp Glu Gln Gln Ala Leu Cys Thr Asp Glu Phe Ser Asp
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 att tcc ccc ctc acc ggt ggc aac gtg gcc ttt tca acc ctg gaa gga 576
 Ile Ser Pro Leu Thr Gly Gly Asn Val Ala Phe Ser Thr Leu Glu Gly
 180 185 190

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Arg Pro Ser Ala Tyr Asn Phe Asp Asn Ser Pro Val Leu Gln Glu Trp			
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Val Thr Ala Thr Asp Ile Arg Val Thr Leu Asn Arg Leu Asn Thr Phe			
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225	230	235	240
gca atc tca gac ttt gct gtg ggc ggc agg tgt aaa tgt aac gga cat		768	
Ala Ile Ser Asp Phe Ala Val Gly Gly Arg Cys Lys Cys Asn Gly His			
245	250	255	
gcc agc gag tgt gta aag aac gag ttt gac aaa ctc atg tgc aac tgc		816	
Ala Ser Glu Cys Val Lys Asn Glu Phe Asp Lys Leu Met Cys Asn Cys			
260	265	270	
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Lys His Asn Thr Tyr Gly Val Asp Cys Glu Lys Cys Leu Pro Phe Phe			
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Asn Asp Arg Pro Trp Arg Arg Ala Thr Ala Glu Ser Ala Ser Glu Cys			
290	295	300	
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Leu Pro Cys Asp Cys Asn Gly Arg Ser Gln Glu Cys Tyr Phe Asp Pro			
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Glu Leu Tyr Arg Ser Thr Gly His Gly His Cys Thr Asn Cys Arg			
325	330	335	
gat aac aca gat ggt gcc aag tgc gag agg tgc cgg gag aat ttc ttc		1056	
Asp Asn Thr Asp Gly Ala Lys Cys Glu Arg Cys Arg Glu Asn Phe Phe			
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Arg Leu Gly Asn Thr Glu Ala Cys Ser Pro Cys His Cys Ser Pro Val			
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Pro Gly Val Met Gly Asp Lys Cys Asp Arg Cys Gln Pro Gly Phe His			
385	390	395	400
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Ser Leu Thr Glu Ala Gly Cys Arg Pro Cys Ser Cys Asp Pro Ser Gly			
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Ser Thr Asp Glu Cys Asn Val Glu Thr Gly Arg Cys Val Cys Lys Asp			
420	425	430	
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Asn Val Glu Gly Phe Asn Cys Glu Arg Cys Lys Pro Gly Phe Phe Asn			

THEORETICAL

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tcc tcc acc ttt cag att gat gag gat ggg tgg cgc gtg gag cag aga Ser Ser Thr Phe Gln Ile Asp Glu Asp Gly Trp Arg Val Glu Gln Arg	485	490	495	1488
gat ggc tcg gag gcg tct ctg gag tgg tcc tca gac agg caa tat att Asp Gly Ser Glu Ala Ser Leu Glu Trp Ser Ser Asp Arg Gln Tyr Ile	500	505	510	1536
gcc gta atc tca gac agt tac ttt cct aga tac ttc atc gcc cct gtg Ala Val Ile Ser Asp Ser Tyr Phe Pro Arg Tyr Phe Ile Ala Pro Val	515	520	525	1584
aag ttc ctg ggc aac cag gtc ctg agt tat ggg cag aat ctt tcc ttc Lys Phe Leu Gly Asn Gln Val Leu Ser Tyr Gly Gln Asn Leu Ser Phe	530	535	540	1632
tcc ttc cga gtg gac aga cga gac act cgc ctc tcc gca gag gac ctt Ser Phe Arg Val Asp Arg Asp Thr Arg Leu Ser Ala Glu Asp Leu	545	550	555	1680
gtg ctc gaa gga gct ggc ttg aga gta tcc gtg ccc ttg atc gct cag Val Leu Glu Gly Ala Gly Leu Arg Val Ser Val Pro Leu Ile Ala Gln	565	570	575	1728
ggc aac tcc tac ccc agc gag acc act gtg aag tac atc ttc agg ctc Gly Asn Ser Tyr Pro Ser Glu Thr Thr Val Lys Tyr Ile Phe Arg Leu	580	585	590	1776
cat gaa gca acg gat tac cct tgg agg ccc gct ctc tcc ccg ttt gaa His Glu Ala Thr Asp Tyr Pro Trp Arg Pro Ala Leu Ser Pro Phe Glu	595	600	605	1824
ttt cag aag ctc ctg aac aac ttg acc tct atc aag atc cgt ggt aca Phe Gln Lys Leu Leu Asn Asn Leu Thr Ser Ile Lys Ile Arg Gly Thr	610	615	620	1872
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gct cgc cct ggg ccc gga gtc cct gca acg tgg gtg gag tcc tgc acc Ala Arg Pro Gly Pro Gly Val Pro Ala Thr Trp Val Glu Ser Cys Thr	645	650	655	1968
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tac aga aga gaa act cca agc ctt gga cct tat agc ccg tgt gtg ctc Tyr Arg Arg Glu Thr Pro Ser Leu Gly Pro Tyr Ser Pro Cys Val Leu	675	680	685	2064

tgt acc tgt aat ggg cac agt gag acc tgt gac ccg gag aca ggt gtc Cys Thr Cys Asn Gly His Ser Glu Thr Cys Asp Pro Glu Thr Gly Val 690 695 700	2112
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gat ggg tac tat ggg gac tca acc ctg ggc acc tcc tct gac tgc cag Asp Gly Tyr Tyr Gly Asp Ser Thr Leu Gly Thr Ser Ser Asp Cys Gln 725 730 735	2208
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ggt act tgt gac cct ggc tac tac aac ctg cag agc ggg caa ggc tgc Gly Thr Cys Asp Pro Gly Tyr Tyr Asn Leu Gln Ser Gly Gln Gly Cys 885 890 895	2688
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TOP SECRET

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aca gag cag ctg att gag atc gcc tcc agg gag ctc gag aaa gca aaa Thr Glu Gln Leu Ile Glu Ile Ala Ser Arg Glu Leu Glu Lys Ala Lys 1105 1110 1115 1120	3360
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Gln His Gly Ala Ala Phe Leu Thr Asp Tyr Asn Asn Gln Ala Asp Thr
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Ser Ile Asn Leu Thr Leu His Leu Gly Lys Ala Phe Asp Ile Thr Tyr
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Val Arg Leu Lys Phe His Thr Ser Arg Pro Glu Ser Phe Ala Ile Tyr
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Ile Ser Pro Leu Thr Gly Gly Asn Val Ala Phe Ser Thr Leu Glu Gly
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Arg Pro Ser Ala Tyr Asn Phe Asp Asn Ser Pro Val Leu Gln Glu Trp
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 645 650 655
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 Ile Arg Thr Gly Gln Cys Glu Cys Gln Pro Gly Ile Thr Gly Gln His

TOP SECRET//COMINT

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 Ile Ala Glu Ala Asn Glu Lys Thr Arg Glu Ala Gln Leu Ala Leu Gly
 1365 1370 1375

 Asn Ala Ala Ala Asp Ala Thr Glu Ala Lys Asn Lys Ala His Glu Ala
 1380 1385 1390

 Glu Arg Ile Ala Ser Ala Ala Gln Lys Asn Ala Thr Ser Thr Lys Ala
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 Asp Ala Glu Arg Thr Phe Gly Glu Val Thr Asp Leu Asp Asn Glu Val
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 Asn Gly Met Leu Arg Gln Leu Glu Glu Ala Glu Asn Glu Leu Lys Arg
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 Lys Gln Asp Asp Ala Asp Gln Asp Met Met Met Ala Gly Met Ala Ser
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 Gln Ala Ala Gln Glu Ala Glu Leu Asn Ala Arg Lys Ala Lys Asn Ser
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 Val Ser Ser Leu Leu Ser Gln Leu Asn Asn Leu Leu Asp Gln Leu Gly
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 Gln Leu Asp Thr Val Asp Leu Asn Lys Leu Asn Glu Ile Glu Gly Ser
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 Leu Asn Lys Ala Lys Asp Glu Met Lys Ala Ser Asp Leu Asp Arg Lys
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 Val Ser Asp Leu Glu Ser Glu Ala Arg Lys Gln Glu Ala Ala Ile Met
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 Asp Tyr Asn Arg Asp Ile Ala Glu Ile Ile Lys Asp Ile His Asn Leu
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Ile Glu Lys Pro
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<220>
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<400> 25

TOP SECRET

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<210> 26	
<211> 20	
<212> DNA	
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<212> DNA	
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PRIMER3/3D

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<212> DNA
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Met Ala Lys Arg Leu Cys Ala Gly Ser Ala Leu Cys Val Arg
1 5 10

ggc ccc cgg ggc ccc gcg ccg ctg ctg gtc ggg ctg gcg ctg ctg 157
Gly Pro Arg Gly Pro Ala Pro Leu Leu Val Gly Leu Ala Leu Leu
15 20 25 30

ggc gcg gcg cgg gcg ccg gag gag gcg ggc ggc ttc agc ctg cac 205
Gly Ala Ala Arg Ala Arg Glu Glu Ala Gly Gly Phe Ser Leu His
35 40 45

ccg ccc tac ttc aac ctg gcc gag ggc gcc cgc atc gcc gcc tcc gcg 253
Pro Pro Tyr Phe Asn Leu Ala Glu Gly Ala Arg Ile Ala Ala Ser Ala
50 55 60

acc tgc gga gag gag gcc ccg gcg ggc tcc ccg cgc ccc acc gag 301
Thr Cys Gly Glu Glu Ala Pro Ala Arg Gly Ser Pro Arg Pro Thr Glu
65 70 75

gac ctt tac tgc aag ctg gta ggg ggc ccc gtg gcc ggc gac ccc 349
Asp Leu Tyr Cys Lys Leu Val Gly Gly Pro Val Ala Gly Gly Asp Pro
80 85 90

aac cag acc atc cgg ggc cag tac tgc gac atc tgc acg gct gcc aac 397
Asn Gln Thr Ile Arg Gly Gln Tyr Cys Asp Ile Cys Thr Ala Ala Asn
95 100 105 110

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Ser Asn Lys Ala His Pro Ala Ser Asn Ala Ile Asp Gly Thr Glu Arg
115 120 125

tgg tgg cag agt cca ccg ctg tcc cgc ggc ctg gag tac aac gag gtc 493
Trp Trp Gln Ser Pro Pro Leu Ser Arg Gly Leu Glu Tyr Asn Glu Val
130 135 140

aac gtc acc ctg gac ctg ggc cag gtc ttc cac gtg gcc tac gtc ctc 541
Asn Val Thr Leu Asp Leu Gly Gln Val Phe His Val Ala Tyr Val Leu
145 150 155

atc aag ttt gcc aac tca ccc cgg ccg gac ctc tgg gtg ctg gag cgg 589
Ile Lys Phe Ala Asn Ser Pro Arg Pro Asp Leu Trp Val Leu Glu Arg
160 165 170

tcc atg gac ttc ggc cgc acc tac cag ccc tgg cag ttc ttt gcc tcc 637
Ser Met Asp Phe Gly Arg Thr Tyr Gln Pro Trp Gln Phe Phe Ala Ser
175 180 185 190

tct aag agg gac tgt ctg gag cgg ttc ggg cca cag acg ctg gag cgc 685
Ser Lys Arg Asp Cys Leu Glu Arg Phe Gly Pro Gln Thr Leu Glu Arg
195 200 205

atc aca cgg gac gac gca gcc atc tgc acc acc gag tac tca cgc atc 733
Ile Thr Arg Asp Asp Ala Ala Ile Cys Thr Thr Glu Tyr Ser Arg Ile
210 215 220

gtg ccc ctg gag aac gga gag atc gtg gtg tcc ctg gtg aac gga cgt Val Pro Leu Glu Asn Gly Glu Ile Val Val Ser Leu Val Asn Gly Arg	781
225 230 235	
ccg ggc gcc atg aat ttc tcc tac tcg ccg ctg cta cgt gag ttc acc Pro Gly Ala Met Asn Phe Ser Tyr Ser Pro Leu Leu Arg Glu Phe Thr	829
240 245 250	
aag gcc acc aac gtc cgc ctg cgc ttc ctg cgt acc aac acg ctg ctg Lys Ala Thr Asn Val Arg Leu Arg Phe Leu Arg Thr Asn Thr Leu Leu	877
255 260 265 270	
ggc cat ctc atg ggg aag gcg ctg cgg gac ccc acg gtc acc cgc cgg Gly His Leu Met Gly Lys Ala Leu Arg Asp Pro Thr Val Thr Arg Arg	925
275 280 285	
tat tat tac agc atc aag gat atc agc atc gga ggc cgc tgt gtc tgc Tyr Tyr Tyr Ser Ile Lys Asp Ile Ser Ile Gly Gly Arg Cys Val Cys	973
290 295 300	
cac ggc cac gcg gat gcc tgc gat gcc aaa gac ccc acg gac cgc ttc His Gly His Ala Asp Ala Cys Asp Ala Lys Asp Pro Thr Asp Pro Phe	1021
305 310 315	
agg ctg cag tgc acc tgc cag cac aac acc tgc ggg ggc acc tgc gac Arg Leu Gln Cys Thr Cys Gln His Asn Thr Cys Gly Gly Thr Cys Asp	1069
320 325 330	
cgc tgc tgc ccc ggc ttc aat cag cag ccg tgg aag cct gcg act gcc Arg Cys Cys Pro Gly Phe Asn Gln Gln Pro Trp Lys Pro Ala Thr Ala	1117
335 340 345 350	
aac agt gcc aac gag tgc cag tcc tgt aac tgc tac ggc cat gcc acc Asn Ser Ala Asn Glu Cys Gln Ser Cys Asn Cys Tyr Gly His Ala Thr	1165
355 360 365	
gac tgt tac tac gac cct gag gtg gac cgg cgc cgc gcc agc cag agc Asp Cys Tyr Tyr Asp Pro Glu Val Asp Arg Arg Arg Ala Ser Gln Ser	1213
370 375 380	
ctg gat ggc acc tat cag ggt ggg ggt gtc tgt atc gac tgc cag cac Leu Asp Gly Thr Tyr Gln Gly Gly Val Cys Ile Asp Cys Gln His	1261
385 390 395	
cac acc gcc ggc gtc aac tgt gag cgc tgc ctg ccc ggc ttc tac cgc His Thr Ala Gly Val Asn Cys Glu Arg Cys Leu Pro Gly Phe Tyr Arg	1309
400 405 410	
tct ccc aac cac cct ctc gac tcg ccc cac gtc tgc cgc cgc tgc aac Ser Pro Asn His Pro Leu Asp Ser Pro His Val Cys Arg Arg Cys Asn	1357
415 420 425 430	
tgc gag tcc gac ttc acg gat ggc acc tgc gag gac ctg acg ggt cga Cys Glu Ser Asp Phe Thr Asp Gly Thr Cys Glu Asp Leu Thr Gly Arg	1405
435 440 445	
tgc tac tgc cgg ccc aac ttc tct ggg gag cgg tgt gac gtg tgt gcc Cys Tyr Cys Arg Pro Asn Phe Ser Gly Glu Arg Cys Asp Val Cys Ala	1453
450 455 460	
gag ggc ttc acg ggc ttc cca agc tgc tac ccg acg ccc tcg tcc tcc	1501

Glu	Gly	Phe	Thr	Gly	Phe	Pro	Ser	Cys	Tyr	Pro	Thr	Pro	Ser	Ser	Ser		
465					470						475						
aat	gac	acc	agg	gag	cag	gtg	ctg	cca	gct	ggc	cag	att	gtg	aat	tgt	1549	
Asn	Asp	Thr	Arg	Glu	Gln	Val	Leu	Pro	Ala	Gly	Gln	Ile	Val	Asn	Cys		
480															490		
gac	tgc	agc	gca	ggg	acc	cag	ggc	aac	gcc	tgc	cg	aag	gac	cca		1597	
Asp	Cys	Ser	Ala	Ala	Gly	Thr	Gln	Gly	Asn	Ala	Cys	Arg	Lys	Asp	Pro		
495															500	505	510
agg	gtg	gga	cgc	tgt	ctg	tgc	aaa	ccc	aac	ttc	caa	ggc	acc	cat	tgt	1645	
Arg	Val	Gly	Arg	Cys	Leu	Cys	Lys	Pro	Asn	Phe	Gln	Gly	Thr	His	Cys		
515															520	525	
gag	ctc	tgc	gca	ggg	ttc	tac	ggc	ccc	ggc	tgc	cag	ccc	tgc	cag		1693	
Glu	Leu	Cys	Ala	Pro	Gly	Phe	Tyr	Gly	Pro	Gly	Cys	Gln	Pro	Cys	Gln		
530															535	540	
tgt	tcc	agc	cct	gga	gtg	gcc	gat	gac	cgc	tgt	gac	cct	gac	aca	ggc	1741	
Cys	Ser	Ser	Pro	Gly	Val	Ala	Asp	Asp	Arg	Cys	Asp	Pro	Asp	Thr	Gly		
545															550	555	
cag	tgc	agg	tgc	cga	gtg	ggc	ttc	gag	ggg	gcc	aca	tgt	gat	cgc	tgt	1789	
Gln	Cys	Arg	Cys	Arg	Val	Gly	Phe	Glu	Gly	Ala	Thr	Cys	Asp	Arg	Cys		
560															565	570	
gcc	ccc	ggc	tac	ttt	cac	ttc	cct	ctc	tgc	cag	ttg	tgt	ggc	tgc	agc	1837	
Ala	Pro	Gly	Tyr	Phe	His	Phe	Pro	Leu	Cys	Gln	Leu	Cys	Gly	Cys	Ser		
575															580	585	590
cct	gca	gga	acc	ttg	ccc	gag	ggc	tgc	gat	gag	gcc	ggc	cgc	tgc	cta	1885	
Pro	Ala	Gly	Thr	Leu	Pro	Glu	Gly	Cys	Asp	Glu	Ala	Gly	Arg	Cys	Leu		
595															600	605	
tgc	cag	cct	gag	ttt	gct	gga	cct	cat	tgt	gac	cgg	tgc	cgc	cct	ggc	1933	
Cys	Gln	Pro	Glu	Phe	Ala	Gly	Pro	His	Cys	Asp	Arg	Cys	Arg	Pro	Gly		
610															615	620	
tac	cat	gg	t	ttc	ccc	aa	c	tc	aa	g	cc	tgc	gac	cct	cg	1981	
Tyr	His	Gly	Phe	Pro	Asn	Cys	Gln	Ala	Cys	Thr	Cys	Asp	Pro	Arg	Gly		
625															630	635	
gcc	ctg	gac	cag	ctc	tgt	ggg	g	cg	g	ga	tt	tgc	cgc	tgc	cgc	2029	
Ala	Leu	Asp	Gln	Leu	Cys	Gly	A	l	a	g	ly	Leu	Cys	Arg	Cys	Arg	Pro
640															645	650	
ggc	tac	aca	ggc	act	gcc	tgc	cag	gaa	tgc	agc	ccc	ggc	ttt	cac	ggc	2077	
Gly	Tyr	Thr	Gly	Thr	Ala	Cys	Gln	Glu	Cys	Ser	Pro	Gly	Phe	His	Gly		
655															660	665	670
ttc	ccc	agc	tgt	ccc	tgc	cac	tgc	tct	gct	gaa	ggc	tcc	ctg	cac		2125	
Phe	Pro	Ser	Cys	Val	Pro	Cys	His	Cys	Ser	Ala	Glu	Gly	Ser	Leu	His		
675															680	685	
gca	gcc	tgt	gac	ccc	cg	agt	ggg	cag	tgc	agc	tgc	cg	ccc	cgt	gt	2173	
Ala	Ala	Cys	Asp	Pro	Arg	Ser	Gly	Gln	Cys	Ser	Cys	Arg	Pro	Arg	Val		
690															695	700	
acg	ggg	ctg	cg	tg	tgt	gac	acg	tgt	gt	ccc	gg	tac	aa	ttc	cc	2221	
Thr	Gly	Leu	Arg	Cys	Asp	Thr	Cys	Val	Pro	Gly	Ala	Tyr	Asn	Phe	Pro		

705	710	715	
tac tgc gaa gct ggc tct tgc cac cct gcc ggt ctg gcc cca gtg gat Tyr Cys Glu Ala Gly Ser Cys His Pro Ala Gly Leu Ala Pro Val Asp 720	725	730	2269
cct gcc ctt cct gag gca cag gtt ccc tgt atg tgc cgg gct cac gtg Pro Ala Leu Pro Glu Ala Gln Val Pro Cys Met Cys Arg Ala His Val 735	740	745	2317
gag ggg ccg agc tgt gac cgc tgc aaa cct ggg ttc tgg gga ctg agc Glu Gly Pro Ser Cys Asp Arg Cys Lys Pro Gly Phe Trp Gly Leu Ser 755	760	765	2365
ccc agc aac ccc gag ggc tgt acc cgc tgc agc tgc gac ctc agg ggc Pro Ser Asn Pro Glu Gly Cys Thr Arg Cys Ser Cys Asp Leu Arg Gly 770	775	780	2413
aca ctg ggt gga gtt gag tgc cag ccg ggc acc ggc cag tgc ttc Thr Leu Gly Gly Val Ala Glu Cys Gln Pro Gly Thr Gly Gln Cys Phe 785	790	795	2461
tgc aag ccc cac gtg tgc ggc cag gcc tgc gcg tcc tgc aag gat ggc Cys Lys Pro His Val Cys Gly Gln Ala Cys Ser Cys Lys Asp Gly 800	805	810	2509
ttc ttt gga ctg gat cag gct gac tat ttt ggc tgc cgc agc tgc cgg Phe Phe Gly Leu Asp Gln Ala Asp Tyr Phe Gly Cys Arg Ser Cys Arg 815	820	825	2557
tgt gac att ggc ggt gca ctg ggc cag agc tgt gaa ccg agg acg ggc Cys Asp Ile Gly Gly Ala Leu Gly Gln Ser Cys Glu Pro Arg Thr Gly 835	840	845	2605
gtc tgc cgg tgc cgc ccc aac acc cag ggc ccc acc tgc agc gag cct Val Cys Arg Cys Arg Pro Asn Thr Gln Gly Pro Thr Cys Ser Glu Pro 850	855	860	2653
gct agg gag cac tac ctc ccg gac ctg cac cac ctg cgc ctg gag ctg Ala Arg Asp His Tyr Leu Pro Asp Leu His His Leu Arg Leu Glu Leu 865	870	875	2701
gag gag gct gcc aca cct gag ggt cac gac gcc gtg cgc ttt ggc ttc aac Glu Glu Ala Ala Thr Pro Glu Gly His Ala Val Arg Phe Gly Phe Asn 880	885	890	2749
ccc ctc gag ttc gag aac ttc agc tgg agg ggc tac gcg cag atg gca Pro Leu Glu Phe Glu Asn Phe Ser Trp Arg Gly Tyr Ala Gln Met Ala 895	900	905	2797
cct gtc cag ccc agg atc gtg gcc agg ctg aac ctg acc tcc ccc gac Pro Val Gln Pro Arg Ile Val Ala Arg Leu Asn Leu Thr Ser Pro Asp 915	920	925	2845
ctt ttc tgg ctc gtc ttc cga tac gtc aac cgg ggg gcc atg agt gtg Leu Phe Trp Leu Val Phe Arg Tyr Val Asn Arg Gly Ala Met Ser Val 930	935	940	2893
agc ggg cgg gtc tct gtg cga gag gag ggc agg tcg gcc gcc tgt gcc Ser Gly Arg Val Ser Val Arg Glu Glu Gly Arg Ser Ala Ala Cys Ala 945	950	955	2941

aac tgc aca gca cag agt cag ccc gtg gcc ttc cca ccc agc acg gag Asn Cys Thr Ala Gln Ser Gln Pro Val Ala Phe Pro Pro Ser Thr Glu 960 . 965 970	2989
cct gcc ttc atc acc gtg ccc cag agg ggc ttc gga gag ccc ttt gtg Pro Ala Phe Ile Thr Val Pro Gln Arg Gly Phe Gly Glu Pro Phe Val 975 980 985 990	3037
ctg aac cct ggc acc tgg gcc ctg cgt gtg gag gcc gaa ggg gtg ctc Leu Asn Pro Gly Thr Trp Ala Leu Arg Val Glu Ala Glu Gly Val Leu 995 1000 1005	3085
ctg gac tac gtg gtt ctg ctg cct agc gca tac tac gag gcg gcg ctc Leu Asp Tyr Val Val Leu Leu Pro Ser Ala Tyr Tyr Glu Ala Ala Leu 1010 1015 1020	3133
ctg cag ctg cgg gtg act gag gcc tgc aca tac cgt ccc tct gcc cag Leu Gln Leu Arg Val Thr Glu Ala Cys Thr Tyr Arg Pro Ser Ala Gln 1025 1030 1035	3181
cag tct ggc gac aac tgc ctc ctc tac aca cac ctc ccc ctg gat ggc Gln Ser Gly Asp Asn Cys Leu Leu Tyr Thr His Leu Pro Leu Asp Gly 1040 1045 1050	3229
tgc ccc tcg gcc gcc ggg ctg gag gcc ctg tgt cgc cag gac aac agc Phe Pro Ser Ala Ala Gly Leu Glu Ala Leu Cys Arg Gln Asp Asn Ser 1055 1060 1065 1070	3277
ctg ccc cgg ccc tgc ccc acg gag cag ctc agc ccg tcg cac ccg cca Leu Pro Arg Pro Cys Pro Thr Glu Gln Leu Ser Pro Ser His Pro Pro 1075 1080 1085	3325
ctg atc acc tgc acg ggc agt gat gtg gac gtc cag ctt caa gtg gca Leu Ile Thr Cys Thr Gly Ser Asp Val Asp Val Gln Leu Gln Val Ala 1090 1095 1100	3373
gtg cca cag cca ggc cgc tat gcc cta gtg gtg gag tac gcc aat gag Val Pro Gln Pro Gly Arg Tyr Ala Leu Val Val Glu Tyr Ala Asn Glu 1105 1110 1115	3421
gat gcc cgc cag gag gtg ggc gtg gct gtg cac acc cca cag ccg gcc Asp Ala Arg Gln Glu Val Gly Val Ala Val His Thr Pro Gln Arg Ala 1120 1125 1130	3469
ccc cag cag ggg ctg ctc tcc ctg cac ccc tgc ctg tac agc acc ctg Pro Gln Gln Gly Leu Leu Ser Leu His Pro Cys Leu Tyr Ser Thr Leu 1135 1140 1145 1150	3517
tgc cgg ggc act gcc cgg gat acc cag gac cac ctg gct gtc ttc cac Cys Arg Gly Thr Ala Arg Asp Thr Gln Asp His Leu Ala Val Phe His 1155 1160 1165	3565
ctg gac tcg gag gcc agc gtg agg ctc aca gcc gag cag gca cgc ttc Leu Asp Ser Glu Ala Ser Val Arg Leu Thr Ala Glu Gln Ala Arg Phe 1170 1175 1180	3613
ttc ctg cac ggg gtc act ctg gtg ccc att gag gag ttc agc ccg gag Phe Leu His Gly Val Thr Leu Val Pro Ile Glu Glu Phe Ser Pro Glu 1185 1190 1195	3661

1992-1993

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ccc aac agt gcc gcc tgt ctg ccc tcg cgc ttc cca aag ccg ccc cag Pro Asn Ser Ala Ala Cys Leu Pro Ser Arg Phe Pro Lys Pro Pro Gln 1215 1220 1225 1230	3757
ccc atc atc ctc agg gac tgc cag gtg atc ccg ctg ccg ccc ggc ctc Pro Ile Ile Leu Arg Asp Cys Gln Val Ile Pro Leu Pro Pro Gly Leu 1235 1240 1245	3805
ccg ctg acc cac gcg cag gat ctc act cca gcc acg tcc cca gct gga Pro Leu Thr His Ala Gln Asp Leu Thr Pro Ala Thr Ser Pro Ala Gly 1250 1255 1260	3853
ccc cga cct cgg ccc acc gct gtg gac cct gat gca gag ccc acc Pro Arg Pro Arg Pro Pro Thr Ala Val Asp Pro Asp Ala Glu Pro Thr 1265 1270 1275	3901
ctg ctg cgt gag ccc cag gcc acc gtg gtc ttc acc acc cat gtg ccc Leu Leu Arg Glu Pro Gln Ala Thr Val Val Phe Thr Thr His Val Pro 1280 1285 1290	3949
acg ctg ggc cgc tat gcc ttc ctg ctg cac ggc tac cag cca gcc cac Thr Leu Gly Arg Tyr Ala Phe Leu Leu His Gly Tyr Gln Pro Ala His 1295 1300 1305 1310	3997
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ctc act gtg acc gtg cgt gtg ccc gag ggc cgg tgg ctc tgg ctg gat Leu Thr Val Thr Val Arg Val Pro Glu Gly Arg Trp Leu Trp Leu Asp 1360 1365 1370	4189
tat gta ctc gtg gtc cct gag aac gtc tac agc ttt ggc tac ctc cgg Tyr Val Leu Val Val Pro Glu Asn Val Tyr Ser Phe Gly Tyr Leu Arg 1375 1380 1385 1390	4237
gag gag ccc ctg gat aaa tcc tat gac ttc atc agc cac tgc gca gcc Glu Glu Pro Leu Asp Lys Ser Tyr Asp Phe Ile Ser His Cys Ala Ala 1395 1400 1405	4285
cag ggc tac cac atc agc ccc agc agc tca tcc ctg ttc tgc cga aac Gln Gly Tyr His Ile Ser Pro Ser Ser Ser Leu Phe Cys Arg Asn 1410 1415 1420	4333
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Gly Cys His Glu Val Gly Ala Thr Gly Pro Thr Cys Glu Pro Phe Gly			
1440	1445	1450	
ggc cag tgt ccc tgc cat gcc cat gtc att ggc cgt gac tgc tcc cgc			4477
Gly Gln Cys Pro Cys His Ala His Val Ile Gly Arg Asp Cys Ser Arg			
1455	1460	1465	1470
tgt gcc acc gga tac tgg ggc ttc ccc aac tgc agg ccc tgt gac tgc			4525
Cys Ala Thr Gly Tyr Trp Gly Phe Pro Asn Cys Arg Pro Cys Asp Cys			
1475		1480	1485
ggt gcc cgc ctc tgt gac gag ctc acg ggc cag tgc atc tgc ccg cca			4573
Gly Ala Arg Leu Cys Asp Glu Leu Thr Gly Gln Cys Ile Cys Pro Pro			
1490	1495		1500
cgc acc atc ccg ccc gac tgc ctg tgc cag ccc cag acc ttt ggc			4621
Arg Thr Ile Pro Pro Asp Cys Leu Leu Cys Gln Pro Gln Thr Phe Gly			
1505	1510		1515
tgc cac ccc ctg gtc ggc tgt gag gag tgt aac tgc tca ggg ccc ggc			4669
Cys His Pro Leu Val Gly Cys Glu Glu Cys Asn Cys Ser Gly Pro Gly			
1520	1525		1530
atc cag gag ctc aca gac cct acc tgt gac aca gac agc ggc cag tgc			4717
Ile Gln Glu Leu Thr Asp Pro Thr Cys Asp Thr Asp Ser Gly Gln Cys			
1535	1540	1545	1550
aag tgc aga ccc aac gtg act ggg cgc cgc tgt gat acc tgc tct ccg			4765
Lys Cys Arg Pro Asn Val Thr Gly Arg Arg Cys Asp Thr Cys Ser Pro			
1555		1560	1565
ggc ttc cat ggc tac ccc cgc tgc cgc ccc tgt gac tgt cac gag ggc			4813
Gly Phe His Gly Tyr Pro Arg Cys Arg Pro Cys Asp Cys His Glu Ala			
1570	1575		1580
ggc act gcg cct ggc gtg tgt gac ccc ctc aca ggg cag tgc tac tgt			4861
Gly Thr Ala Pro Gly Val Cys Asp Pro Leu Thr Gly Gln Cys Tyr Cys			
1585	1590		1595
aag gag aac gtg cag ggc ccc aaa tgt gac cag tgc agc ctt ggg acc			4909
Lys Glu Asn Val Gln Gly Pro Lys Cys Asp Gln Cys Ser Leu Gly Thr			
1600	1605		1610
ttc tca ctg gat gct gcc aac ccc aaa ggt tgc acc cgc tgc ttc tgc			4957
Phe Ser Leu Asp Ala Ala Asn Pro Lys Gly Cys Thr Arg Cys Phe Cys			
1615	1620	1625	1630
ttt ggg gcc acg gag cgc tgc cgg agc tcg tcc tac acc cgc cag gag			5005
Phe Gly Ala Thr Glu Arg Cys Arg Ser Ser Ser Tyr Thr Arg Gln Glu			
1635	1640		1645
ttc gtg gat atg gag gga tgg gtg ctg ctg agc act gac cgg cag gtg			5053
Phe Val Asp Met Glu Gly Trp Val Leu Leu Ser Thr Asp Arg Gln Val			
1650	1655		1660
gtg ccc cac gag cgg cag cca ggg acg gag atg ctc cgt gca gac ctg			5101
Val Pro His Glu Arg Gln Pro Gly Thr Glu Met Leu Arg Ala Asp Leu			
1665	1670		1675
cgg cac gtg cct gag gct gtg ccc gag gct ttc ccc gag ctg tac tgg			5149
Arg His Val Pro Glu Ala Val Pro Glu Ala Phe Pro Glu Leu Tyr Trp			

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1680	1685	1690	
cag gcc cca ccc tcc tac ctg ggg gac cg ^g gt ^g tca tcc tac ggt ggg Gln Ala Pro Pro Ser Tyr Leu Gly Asp Arg Val Ser Ser Tyr Gly Gly			5197
1695	1700	1705	1710
acc ctc cgt tat gaa ctg cac tca gag acc cag cg ^g gga gat gtc ttt Thr Leu Arg Tyr Glu Leu His Ser Glu Thr Gln Arg Gly Asp Val Phe			5245
1715	1720	1725	
gtc ccc atg gag agc agg ccg gat gt ^g gt ^g ctg cag gg ^c aac cag atg Val Pro Met Glu Ser Arg Pro Asp Val Val Leu Gln Gly Asn Gln Met			5293
1730	1735	1740	
agc atc aca ttc ctg gag ccg gca tac ccc acg cct gg ^c cac gtt cac Ser Ile Thr Phe Leu Glu Pro Ala Tyr Pro Thr Pro Gly His Val His			5341
1745	1750	1755	
cgt ggg cag ctg cag ctg gt ^g gag ggg aac ttc cg ^g cat acg gag act Arg Gly Gln Leu Gln Leu Val Glu Gly Asn Phe Arg His Thr Glu Thr			5389
1760	1765	1770	
cgc aac act gt ^g tcc cgc gag gag ct ^c atg atg gt ^g ct ^g g ^c c agc ct ^g Arg Asn Thr Val Ser Arg Glu Glu Leu Met Met Val Leu Ala Ser Leu			5437
1775	1780	1785	1790
gag cag ctg cag atc cgt gg ^c ctc ttc tca cag atc tcc tcg gct gt ^c Glu Gln Leu Gln Ile Arg Ala Leu Phe Ser Gln Ile Ser Ser Ala Val			5485
1795	1800	1805	
tcc ctg cgc agg gt ^g gca ctg gag gt ^g gg ^c agc cca gca gg ^c cag ggg Ser Leu Arg Arg Val Ala Leu Glu Val Ala Ser Pro Ala Gly Gln Gly			5533
1810	1815	1820	
gcc ctg gcc agc aat gt ^g gag ctg tgc ctg tgc ccc gg ^c agc tac cg ^g Ala Leu Ala Ser Asn Val Glu Leu Cys Leu Cys Pro Ala Ser Tyr Arg			5581
1825	1830	1835	
ggg gac tca tgc cag gaa tgt gg ^c ccc gg ^c ttc tat cg ^g gac gt ^c aaa Gly Asp Ser Cys Gln Glu Cys Ala Pro Gly Phe Tyr Arg Asp Val Lys			5629
1840	1845	1850	
gg ^t ctc ttc ctg gg ^c cga tgt gt ^c cct tgt cag tgc cat gg ^c cac tca Gly Leu Phe Leu Gly Arg Cys Val Pro Cys Gln Cys His Gly His Ser			5677
1855	1860	1865	1870
gac cgc tgc ctc cct gg ^c tct gg ^c gt ^c tgt gt ^c gac tgc cag cac aac Asp Arg Cys Leu Pro Gly Ser Gly Val Cys Val Asp Cys Gln His Asn			5725
1875	1880	1885	
acc gaa ggg gcc cac tgt gag cgc tgc cag gct gg ^c ttc atg agc agc Thr Glu Gly Ala His Cys Glu Arg Cys Gln Ala Gly Phe Met Ser Ser			5773
1890	1895	1900	
agg gac gac ccc agc gg ^c ccc tgt gt ^c agc tgc ccc tgc ccc ctc tca Arg Asp Asp Pro Ser Ala Pro Cys Val Ser Cys Pro Cys Pro Leu Ser			5821
1905	1910	1915	
gt ^t cct tcc aac aac ttc gg ^c gag gg ^c tgt gt ^c ctg cga gg ^c gg ^c cgc Val Pro Ser Asn Asn Phe Ala Glu Gly Cys Val Leu Arg Gly Gly Arg			5869
1920	1925	1930	

BDBTEETT2000T

acc cag tgc ctc tgc aaa cct ggt tat gca ggt gcc tcc tgc gag cgg Thr Gln Cys Leu Cys Lys Pro Gly Tyr Ala Gly Ala Ser Cys Glu Arg 1935 1940 1945 1950	5917
tgt gcg ccc gga ttc ttt ggg aac cca ctg gtg ctg ggc agc tcc tgc Cys Ala Pro Gly Phe Phe Gly Asn Pro Leu Val Leu Gly Ser Ser Cys 1955 1960 1965	5965
cag cca tgc gac tgc agc ggc aac ggt gac ccc aac ttg ctc ttc agc Gln Pro Cys Asp Cys Ser Gly Asn Gly Asp Pro Asn Leu Leu Phe Ser 1970 1975 1980	6013
gac tgc gac ccc ctg acg ggc gcc tgc cgt ggc tgc ctg cgc cac acc Asp Cys Asp Pro Leu Thr Gly Ala Cys Arg Gly Cys Leu Arg His Thr 1985 1990 1995	6061
act ggg ccc cgc tgc gag atc tgt gcc ccc ggc ttc tac ggc aac gcc Thr Gly Pro Arg Cys Glu Ile Cys Ala Pro Gly Phe Tyr Gly Asn Ala 2000 2005 2010	6109
ctg ctg ccc ggc aac tgc acc cgg tgc gac tgt acc cca tgt ggg aca Leu Leu Pro Gly Asn Cys Thr Arg Cys Asp Cys Thr Pro Cys Gly Thr 2015 2020 2025 2030	6157
gag gcc tgc gac ccc cac agc ggg cac tgc ctg tgc aag gcg ggc gtg Glu Ala Cys Asp Pro His Ser Gly His Cys Leu Cys Lys Ala Gly Val 2035 2040 2045	6205
act ggg cgg cgc tgt gac cgc tgc cag gag gga cat ttt ggt ttc aat Thr Gly Arg Arg Cys Asp Arg Cys Gln Glu Gly His Phe Gly Phe Asn 2050 2055 2060	6253
ggc tgc ggg ggc tgc cgc ccg tgt gct tgt gga ccg gcc gag ggc Gly Cys Gly Cys Arg Pro Cys Ala Cys Gly Pro Ala Ala Glu Gly 2065 2070 2075	6301
tcc gag tgc cac ccc cag agc gga cag tgc cac tgc cga cca ggg acc Ser Glu Cys His Pro Gln Ser Gly Gln Cys His Cys Arg Pro Gly Thr 2080 2085 2090	6349
atg gga ccc cag tgc cgc gag tgt gcc cct ggc tac tgg ggg ctc cct Met Gly Pro Gln Cys Arg Glu Cys Ala Pro Gly Tyr Trp Gly Leu Pro 2095 2100 2105 2110	6397
gag cag ggc tgc agg cgc tgc cag tgc cct ggg ggc cgc tgt gac cct Glu Gln Gly Cys Arg Arg Cys Gln Cys Pro Gly Gly Arg Cys Asp Pro 2115 2120 2125	6445
cac acg ggc cgc tgc aac tgc ccc ccg ggg ctc agc ggg gag cgc tgc His Thr Gly Arg Cys Asn Cys Pro Pro Gly Leu Ser Gly Glu Arg Cys 2130 2135 2140	6493
gac acc tgc agc cag cat cag gtg cct gtt cca ggc ggg cct gtg Asp Thr Cys Ser Gln Gln His Gln Val Pro Val Pro Gly Gly Pro Val 2145 2150 2155	6541
ggc cac agc atc cac tgt gaa gtg tgt gac cac tgt gtg gtc ctg ctc Gly His Ser Ile His Cys Glu Val Cys Asp His Cys Val Val Leu Leu 2160 2165 2170	6589

1

ctg gat gac ctg gaa cgg gcc ggc gcc ctc ctc ccc gcc att cac gag Leu Asp Asp Leu Glu Arg Ala Gly Ala Leu Leu Pro Ala Ile His Glu 2175 2180 2185 2190	6637
caa ctg cgt ggc atc aat gcc agc tcc atg gcc tgg gcc cgt ctg cac Gln Leu Arg Gly Ile Asn Ala Ser Ser Met Ala Trp Ala Arg Leu His 2195 2200 2205	6685
agg ctg aac gcc tcc atc gct gac ctg cag agc cag ctc cgg agc ccc Arg Leu Asn Ala Ser Ile Ala Asp Leu Gln Ser Gln Leu Arg Ser Pro 2210 2215 2220	6733
ctg ggc ccc cgc cat gag acg gca cag cag ctg gag gtg ctg gag cag Leu Gly Pro Arg His Glu Thr Ala Gln Gln Leu Glu Val Leu Glu Gln 2225 2230 2235	6781
cag agc aca agc ctc ggg cag gac gca cgg cgg cta ggc ggc cag gcc Gln Ser Thr Ser Leu Gly Gln Asp Ala Arg Arg Leu Gly Gly Gln Ala 2240 2245 2250	6829
gtg ggg acc cga gac cag gcg agc caa ttg ctg gcc ggc acc gag gcc Val Gly Thr Arg Asp Gln Ala Ser Gln Leu Leu Ala Gly Thr Glu Ala 2255 2260 2265 2270	6877
aca ctg ggc cat gcg aag acg ctg ttg gcg gcc atc cgg gct gtg gac Thr Leu Gly His Ala Lys Thr Leu Leu Ala Ala Ile Arg Ala Val Asp 2275 2280 2285	6925
cgc acc ctg agc gag ctc atg tcc cag acg ggc cac ctg ggg ctg gcc Arg Thr Leu Ser Glu Leu Met Ser Gln Thr Gly His Leu Gly Leu Ala 2290 2295 2300	6973
aat gcc tcg gct cca tca ggt gag cag ctg ctc cgg aca ctg gcc gag Asn Ala Ser Ala Pro Ser Gly Glu Gln Leu Leu Arg Thr Leu Ala Glu 2305 2310 2315	7021
gtg gag cgg ctg ctc tgg gag atg cgg gcc cgg gac ctg ggg gcc ccg Val Glu Arg Leu Leu Trp Glu Met Arg Ala Arg Asp Leu Gly Ala Pro 2320 2325 2330	7069
cag gca gca gct gag gct gag ttg gct gca gca cag aga ttg ctg gcc Gln Ala Ala Ala Glu Ala Glu Leu Ala Ala Gln Arg Leu Leu Ala 2335 2340 2345 2350	7117
cgg gtg cag gag cag ctg agc agc ctc tgg gag gag aac cag gca ctg Arg Val Gln Glu Gln Leu Ser Ser Leu Trp Glu Glu Asn Gln Ala Leu 2355 2360 2365	7165
gcc aca caa acc cgc gac cgg ctg gcc cag cac gag gcc ggc ctc atg Ala Thr Gln Thr Arg Asp Arg Leu Ala Gln His Glu Ala Gly Leu Met 2370 2375 2380	7213
gac ctg cga gag gct ttg aac cgg gca gtg gac gcc aca cgg gag gcc Asp Leu Arg Glu Ala Leu Asn Arg Ala Val Asp Ala Thr Arg Glu Ala 2385 2390 2395	7261
cag gag ctc aac agc cgc aac cag gag cgc ctg gag gaa gcc ctg caa Gln Glu Leu Asn Ser Arg Asn Gln Glu Arg Leu Glu Ala Leu Gln 2400 2405 2410	7309
agg aag cag gag ctg tcc cgg gac aat gcc acc ctg cag gcc act ctg	7357

TOTAL

Arg Lys Gln Glu Leu Ser Arg Asp Asn Ala Thr Leu Gln Ala Thr Leu			
2415 2420 2425 2430			
cat gcg gct agg gac acc ctg gcc agc gtc ttc aga ttg ctg cac agc			7405
His Ala Ala Arg Asp Thr Leu Ala Ser Val Phe Arg Leu Leu His Ser			
2435 2440 2445			
ctg gac cag gct aag gag gag ctg gag cgcc ctc gcc gcc agc ctg gac			7453
Leu Asp Gln Ala Lys Glu Glu Leu Glu Arg Leu Ala Ala Ser Leu Asp			
2450 2455 2460			
ggg gct cgg acc cca ctg ctg cag agg atg cag acc ttc tcc ccg gcg			7501
Gly Ala Arg Thr Pro Leu Leu Gln Arg Met Gln Thr Phe Ser Pro Ala			
2465 2470 2475			
ggc agc aag ctg cgt cta gtg gag gcc gcc gag gcc cac gca cag cag			7549
Gly Ser Lys Leu Arg Leu Val Glu Ala Ala Glu Ala His Ala Gln Gln			
2480 2485 2490			
ctg ggc cag ctg gca ctc aat ctg tcc agc atc atc ctg gac gtc aac			7597
Leu Gly Gln Leu Ala Leu Asn Leu Ser Ser Ile Ile Leu Asp Val Asn			
2495 2500 2505 2510			
cag gac cgc ctc acc cag agg gcc atc gag gcc tcc aac gcc tac agc			7645
Gln Asp Arg Leu Thr Gln Arg Ala Ile Glu Ala Ser Asn Ala Tyr Ser			
2515 2520 2525			
cgc atc ctg cag gcc gtg cag gct gcc gag gat gct gct ggc cag gcc			7693
Arg Ile Leu Gln Ala Val Gln Ala Ala Glu Asp Ala Ala Gly Gln Ala			
2530 2535 2540			
ctg cag cag gcg gac cac acg tgg gcg acg gtg gtg cgg cag ggc ctg			7741
Leu Gln Gln Ala Asp His Thr Trp Ala Thr Val Val Arg Gln Gly Leu			
2545 2550 2555			
gtg gac cga gcc cag ctc ctg gcc aac agc act gca cta gaa gag			7789
Val Asp Arg Ala Gln Gln Leu Leu Ala Asn Ser Thr Ala Leu Glu Glu			
2560 2565 2570			
gcc atg ctc cag gaa cag cag agg ctg ggc ctt gtg tgg gct gcc ctc			7837
Ala Met Leu Gln Glu Gln Gln Arg Leu Gly Leu Val Trp Ala Ala Leu			
2575 2580 2585 2590			
cag ggt gcc agg acc cag ctc cga gat gtc cgg gcc aag aag gac cag			7885
Gln Gly Ala Arg Thr Gln Leu Arg Asp Val Arg Ala Lys Lys Asp Gln			
2595 2600 2605			
ctg gag gcg cac atc cag gcg cag gcc atg ctt gcc atg gac aca			7933
Leu Glu Ala His Ile Gln Ala Ala Met Leu Ala Met Asp Thr			
2610 2615 2620			
gac gag aca agc aag aag atc gca cat gcc aag gct gtg gct gct gaa			7981
Asp Glu Thr Ser Lys Lys Ile Ala His Ala Lys Ala Val Ala Ala Glu			
2625 2630 2635			
gcc cag gac acc gcc acc cgt gtg cag tcc cag ctg cag gcc atg cag			8029
Ala Gln Asp Thr Ala Thr Arg Val Gln Ser Gln Leu Gln Ala Met Gln			
2640 2645 2650			
gag aat gtg gag cgg tgg cag ggc cag tac gag ggc ctg cgg ggc cag			8077
Glu Asn Val Glu Arg Trp Gln Gly Gln Tyr Glu Gly Leu Arg Gly Gln			

TOP SECRET

2655	2660	2665	2670	
gac ctg ggc cag gca gtg ctt gac gca ggc cac tca gtg tcc acc ctg Asp Leu Gly Gln Ala Val Leu Asp Ala Gly His Ser Val Ser Thr Leu				8125
2675	2680	2685		
gag aag acg ctg ccc cag ctg ctg gcc aag ctg agc atc ctg gag aac Glu Lys Thr Leu Pro Gln Leu Leu Ala Lys Leu Ser Ile Leu Glu Asn				8173
2690	2695	2700		
cgt ggg gtg cac aac gcc agc ctg gcc ctg tcc gcc agc att ggc cgc Arg Gly Val His Asn Ala Ser Ile Ala Leu Ser Ala Ser Ile Gly Arg				8221
2705	2710	2715		
gtg cga gag ctc att gcc cag gcc cggt ggtt gct gcc agt aag gtc aag Val Arg Glu Leu Ile Ala Gln Ala Arg Gly Ala Ala Ser Lys Val Lys				8269
2720	2725	2730		
gtg ccc atg aag ttc aac ggg cgc tca Val Pro Met Lys Phe Asn Gly Arg Ser				8296
2735	2740			
<210> 36				
<211> 2743				
<212> PRT				
<213> Homo sapiens				
<400> 36				
Met Ala Lys Arg Leu Cys Ala Gly Ser Ala Leu Cys Val Arg Gly Pro				
1	5	10	15	
Arg Gly Pro Ala Pro Leu Leu Leu Val Gly Leu Ala Leu Leu Gly Ala				
20	25	30		
Ala Arg Ala Arg Glu Glu Ala Gly Gly Phe Ser Leu His Pro Pro				
35	40	45		
Tyr Phe Asn Leu Ala Glu Gly Ala Arg Ile Ala Ala Ser Ala Thr Cys				
50	55	60		
Gly Glu Glu Ala Pro Ala Arg Gly Ser Pro Arg Pro Thr Glu Asp Leu				
65	70	75	80	
Tyr Cys Lys Leu Val Gly Gly Pro Val Ala Gly Gly Asp Pro Asn Gln				
85	90	95		
Thr Ile Arg Gly Gln Tyr Cys Asp Ile Cys Thr Ala Ala Asn Ser Asn				
100	105	110		
Lys Ala His Pro Ala Ser Asn Ala Ile Asp Gly Thr Glu Arg Trp Trp				
115	120	125		
Gln Ser Pro Pro Leu Ser Arg Gly Leu Glu Tyr Asn Glu Val Asn Val				
130	135	140		
Thr Leu Asp Leu Gly Gln Val Phe His Val Ala Tyr Val Leu Ile Lys				
145	150	155	160	
Phe Ala Asn Ser Pro Arg Pro Asp Leu Trp Val Leu Glu Arg Ser Met				
165	170	175		

TOTAL LENGTH

Asp Phe Gly Arg Thr Tyr Gln Pro Trp Gln Phe Phe Ala Ser Ser Lys			
180	185	190	
Arg Asp Cys Leu Glu Arg Phe Gly Pro Gln Thr Leu Glu Arg Ile Thr			
195	200	205	
Arg Asp Asp Ala Ala Ile Cys Thr Thr Glu Tyr Ser Arg Ile Val Pro			
210	215	220	
Leu Glu Asn Gly Glu Ile Val Val Ser Leu Val Asn Gly Arg Pro Gly			
225	230	235	240
Ala Met Asn Phe Ser Tyr Ser Pro Leu Leu Arg Glu Phe Thr Lys Ala			
245	250	255	
Thr Asn Val Arg Leu Arg Phe Leu Arg Thr Asn Thr Leu Leu Gly His			
260	265	270	
Leu Met Gly Lys Ala Leu Arg Asp Pro Thr Val Thr Arg Arg Tyr Tyr			
275	280	285	
Tyr Ser Ile Lys Asp Ile Ser Ile Gly Gly Arg Cys Val Cys His Gly			
290	295	300	
His Ala Asp Ala Cys Asp Ala Lys Asp Pro Thr Asp Pro Phe Arg Leu			
305	310	315	320
Gln Cys Thr Cys Gln His Asn Thr Cys Gly Gly Thr Cys Asp Arg Cys			
325	330	335	
Cys Pro Gly Phe Asn Gln Gln Pro Trp Lys Pro Ala Thr Ala Asn Ser			
340	345	350	
Ala Asn Glu Cys Gln Ser Cys Asn Cys Tyr Gly His Ala Thr Asp Cys			
355	360	365	
Tyr Tyr Asp Pro Glu Val Asp Arg Arg Arg Ala Ser Gln Ser Leu Asp			
370	375	380	
Gly Thr Tyr Gln Gly Gly Val Cys Ile Asp Cys Gln His His Thr			
385	390	395	400
Ala Gly Val Asn Cys Glu Arg Cys Leu Pro Gly Phe Tyr Arg Ser Pro			
405	410	415	
Asn His Pro Leu Asp Ser Pro His Val Cys Arg Arg Cys Asn Cys Glu			
420	425	430	
Ser Asp Phe Thr Asp Gly Thr Cys Glu Asp Leu Thr Gly Arg Cys Tyr			
435	440	445	
Cys Arg Pro Asn Phe Ser Gly Glu Arg Cys Asp Val Cys Ala Glu Gly			
450	455	460	
Phe Thr Gly Phe Pro Ser Cys Tyr Pro Thr Pro Ser Ser Ser Asn Asp			
465	470	475	480
Thr Arg Glu Gln Val Leu Pro Ala Gly Gln Ile Val Asn Cys Asp Cys			
485	490	495	

Ser Ala Ala Gly Thr Gln Gly Asn Ala Cys Arg Lys Asp Pro Arg Val
 500 505 510
 Gly Arg Cys Leu Cys Lys Pro Asn Phe Gln Gly Thr His Cys Glu Leu
 515 520 525
 Cys Ala Pro Gly Phe Tyr Gly Pro Gly Cys Gln Pro Cys Gln Cys Ser
 530 535 540
 Ser Pro Gly Val Ala Asp Asp Arg Cys Asp Pro Asp Thr Gly Gln Cys
 545 550 555 560
 Arg Cys Arg Val Gly Phe Glu Gly Ala Thr Cys Asp Arg Cys Ala Pro
 565 570 575
 Gly Tyr Phe His Phe Pro Leu Cys Gln Leu Cys Gly Cys Ser Pro Ala
 580 585 590
 Gly Thr Leu Pro Glu Gly Cys Asp Glu Ala Gly Arg Cys Leu Cys Gln
 595 600 605
 Pro Glu Phe Ala Gly Pro His Cys Asp Arg Cys Arg Pro Gly Tyr His
 610 615 620
 Gly Phe Pro Asn Cys Gln Ala Cys Thr Cys Asp Pro Arg Gly Ala Leu
 625 630 635 640
 Asp Gln Leu Cys Gly Ala Gly Leu Cys Arg Cys Arg Pro Gly Tyr
 645 650 655
 Thr Gly Thr Ala Cys Gln Glu Cys Ser Pro Gly Phe His Gly Phe Pro
 660 665 670
 Ser Cys Val Pro Cys His Cys Ser Ala Glu Gly Ser Leu His Ala Ala
 675 680 685
 Cys Asp Pro Arg Ser Gly Gln Cys Ser Cys Arg Pro Arg Val Thr Gly
 690 695 700
 Leu Arg Cys Asp Thr Cys Val Pro Gly Ala Tyr Asn Phe Pro Tyr Cys
 705 710 715 720
 Glu Ala Gly Ser Cys His Pro Ala Gly Leu Ala Pro Val Asp Pro Ala
 725 730 735
 Leu Pro Glu Ala Gln Val Pro Cys Met Cys Arg Ala His Val Glu Gly
 740 745 750
 Pro Ser Cys Asp Arg Cys Lys Pro Gly Phe Trp Gly Leu Ser Pro Ser
 755 760 765
 Asn Pro Glu Gly Cys Thr Arg Cys Ser Cys Asp Leu Arg Gly Thr Leu
 770 775 780
 Gly Gly Val Ala Glu Cys Gln Pro Gly Thr Gly Gln Cys Phe Cys Lys
 785 790 795 800
 Pro His Val Cys Gly Gln Ala Cys Ala Ser Cys Lys Asp Gly Phe Phe
 805 810 815
 Gly Leu Asp Gln Ala Asp Tyr Phe Gly Cys Arg Ser Cys Arg Cys Asp

820	825	830	
Ile Gly Gly Ala Leu Gly Gln Ser Cys Glu Pro Arg Thr Gly Val Cys 835	840	845	
Arg Cys Arg Pro Asn Thr Gln Gly Pro Thr Cys Ser Glu Pro Ala Arg 850	855	860	
Asp His Tyr Leu Pro Asp Leu His His Leu Arg Leu Glu Leu Glu Glu 865	870	875	880
Ala Ala Thr Pro Glu Gly His Ala Val Arg Phe Gly Phe Asn Pro Leu 885	890	895	
Glu Phe Glu Asn Phe Ser Trp Arg Gly Tyr Ala Gln Met Ala Pro Val 900	905	910	
Gln Pro Arg Ile Val Ala Arg Leu Asn Leu Thr Ser Pro Asp Leu Phe 915	920	925	
Trp Leu Val Phe Arg Tyr Val Asn Arg Gly Ala Met Ser Val Ser Gly 930	935	940	
Arg Val Ser Val Arg Glu Glu Gly Arg Ser Ala Ala Cys Ala Asn Cys 945	950	955	960
Thr Ala Gln Ser Gln Pro Val Ala Phe Pro Pro Ser Thr Glu Pro Ala 965	970	975	
Phe Ile Thr Val Pro Gln Arg Gly Phe Gly Glu Pro Phe Val Leu Asn 980	985	990	
Pro Gly Thr Trp Ala Leu Arg Val Glu Ala Glu Gly Val Leu Leu Asp 995	1000	1005	
Tyr Val Val Leu Leu Pro Ser Ala Tyr Tyr Glu Ala Ala Leu Leu Gln 1010	1015	1020	
Leu Arg Val Thr Glu Ala Cys Thr Tyr Arg Pro Ser Ala Gln Gln Ser 1025	1030	1035	1040
Gly Asp Asn Cys Leu Leu Tyr Thr His Leu Pro Leu Asp Gly Phe Pro 1045	1050	1055	
Ser Ala Ala Gly Leu Glu Ala Leu Cys Arg Gln Asp Asn Ser Leu Pro 1060	1065	1070	
Arg Pro Cys Pro Thr Glu Gln Leu Ser Pro Ser His Pro Pro Leu Ile 1075	1080	1085	
Thr Cys Thr Gly Ser Asp Val Asp Val Gln Leu Gln Val Ala Val Pro 1090	1095	1100	
Gln Pro Gly Arg Tyr Ala Leu Val Val Glu Tyr Ala Asn Glu Asp Ala 1105	1110	1115	1120
Arg Gln Glu Val Gly Val Ala Val His Thr Pro Gln Arg Ala Pro Gln 1125	1130	1135	
Gln Gly Leu Leu Ser Leu His Pro Cys Leu Tyr Ser Thr Leu Cys Arg 1140	1145	1150	

Gly Thr Ala Arg Asp Thr Gln Asp His Leu Ala Val Phe His Leu Asp
 1155 1160 1165
 Ser Glu Ala Ser Val Arg Leu Thr Ala Glu Gln Ala Arg Phe Phe Leu
 1170 1175 1180
 His Gly Val Thr Leu Val Pro Ile Glu Glu Phe Ser Pro Glu Phe Val
 1185 1190 1195 1200
 Glu Pro Arg Val Ser Cys Ile Ser Ser His Gly Ala Phe Gly Pro Asn
 1205 1210 1215
 Ser Ala Ala Cys Leu Pro Ser Arg Phe Pro Lys Pro Pro Gln Pro Ile
 1220 1225 1230
 Ile Leu Arg Asp Cys Gln Val Ile Pro Leu Pro Pro Gly Leu Pro Leu
 1235 1240 1245
 Thr His Ala Gln Asp Leu Thr Pro Ala Thr Ser Pro Ala Gly Pro Arg
 1250 1255 1260
 Pro Arg Pro Pro Thr Ala Val Asp Pro Asp Ala Glu Pro Thr Leu Leu
 1265 1270 1275 1280
 Arg Glu Pro Gln Ala Thr Val Val Phe Thr Thr His Val Pro Thr Leu
 1285 1290 1295
 Gly Arg Tyr Ala Phe Leu Leu His Gly Tyr Gln Pro Ala His Pro Thr
 1300 1305 1310
 Phe Pro Val Glu Val Leu Ile Asn Ala Gly Arg Val Trp Gln Gly His
 1315 1320 1325
 Ala Asn Ala Ser Phe Cys Pro His Gly Tyr Gly Cys Arg Thr Leu Val
 1330 1335 1340
 Val Cys Glu Gly Gln Ala Leu Leu Asp Val Thr His Ser Glu Leu Thr
 1345 1350 1355 1360
 Val Thr Val Arg Val Pro Glu Gly Arg Trp Leu Trp Leu Asp Tyr Val
 1365 1370 1375
 Leu Val Val Pro Glu Asn Val Tyr Ser Phe Gly Tyr Leu Arg Glu Glu
 1380 1385 1390
 Pro Leu Asp Lys Ser Tyr Asp Phe Ile Ser His Cys Ala Ala Gln Gly
 1395 1400 1405
 Tyr His Ile Ser Pro Ser Ser Ser Leu Phe Cys Arg Asn Ala Ala
 1410 1415 1420
 Ala Ser Leu Ser Leu Phe Tyr Asn Asn Gly Ala Arg Pro Cys Gly Cys
 1425 1430 1435 1440
 His Glu Val Gly Ala Thr Gly Pro Thr Cys Glu Pro Phe Gly Gly Gln
 1445 1450 1455
 Cys Pro Cys His Ala His Val Ile Gly Arg Asp Cys Ser Arg Cys Ala
 1460 1465 1470

Thr Gly Tyr Trp Gly Phe Pro Asn Cys Arg Pro Cys Asp Cys Gly Ala
 1475 1480 1485
 Arg Leu Cys Asp Glu Leu Thr Gly Gln Cys Ile Cys Pro Pro Arg Thr
 1490 1495 1500
 Ile Pro Pro Asp Cys Leu Leu Cys Gln Pro Gln Thr Phe Gly Cys His
 1505 1510 1515 1520
 Pro Leu Val Gly Cys Glu Glu Cys Asn Cys Ser Gly Pro Gly Ile Gln
 1525 1530 1535
 Glu Leu Thr Asp Pro Thr Cys Asp Thr Asp Ser Gly Gln Cys Lys Cys
 1540 1545 1550
 Arg Pro Asn Val Thr Gly Arg Arg Cys Asp Thr Cys Ser Pro Gly Phe
 1555 1560 1565
 His Gly Tyr Pro Arg Cys Arg Pro Cys Asp Cys His Glu Ala Gly Thr
 1570 1575 1580
 Ala Pro Gly Val Cys Asp Pro Leu Thr Gly Gln Cys Tyr Cys Lys Glu
 1585 1590 1595 1600
 Asn Val Gln Gly Pro Lys Cys Asp Gln Cys Ser Leu Gly Thr Phe Ser
 1605 1610 1615
 Leu Asp Ala Ala Asn Pro Lys Gly Cys Thr Arg Cys Phe Cys Phe Gly
 1620 1625 1630
 Ala Thr Glu Arg Cys Arg Ser Ser Ser Tyr Thr Arg Gln Glu Phe Val
 1635 1640 1645
 Asp Met Glu Gly Trp Val Leu Leu Ser Thr Asp Arg Gln Val Val Pro
 1650 1655 1660
 His Glu Arg Gln Pro Gly Thr Glu Met Leu Arg Ala Asp Leu Arg His
 1665 1670 1675 1680
 Val Pro Glu Ala Val Pro Glu Ala Phe Pro Glu Leu Tyr Trp Gln Ala
 1685 1690 1695
 Pro Pro Ser Tyr Leu Gly Asp Arg Val Ser Ser Tyr Gly Thr Leu
 1700 1705 1710
 Arg Tyr Glu Leu His Ser Glu Thr Gln Arg Gly Asp Val Phe Val Pro
 1715 1720 1725
 Met Glu Ser Arg Pro Asp Val Val Leu Gln Gly Asn Gln Met Ser Ile
 1730 1735 1740
 Thr Phe Leu Glu Pro Ala Tyr Pro Thr Pro Gly His Val His Arg Gly
 1745 1750 1755 1760
 Gln Leu Gln Leu Val Glu Gly Asn Phe Arg His Thr Glu Thr Arg Asn
 1765 1770 1775
 Thr Val Ser Arg Glu Glu Leu Met Met Val Leu Ala Ser Leu Glu Gln
 1780 1785 1790
 Leu Gln Ile Arg Ala Leu Phe Ser Gln Ile Ser Ser Ala Val Ser Leu

1795 1800 1805

Arg Arg Val Ala Leu Glu Val Ala Ser Pro Ala Gly Gln Gly Ala Leu
 1810 1815 1820

Ala Ser Asn Val Glu Leu Cys Leu Cys Pro Ala Ser Tyr Arg Gly Asp
 1825 1830 1835 1840

Ser Cys Gln Glu Cys Ala Pro Gly Phe Tyr Arg Asp Val Lys Gly Leu
 1845 1850 1855

Phe Leu Gly Arg Cys Val Pro Cys Gln Cys His Gly His Ser Asp Arg
 1860 1865 1870

Cys Leu Pro Gly Ser Gly Val Cys Val Asp Cys Gln His Asn Thr Glu
 1875 1880 1885

Gly Ala His Cys Glu Arg Cys Gln Ala Gly Phe Met Ser Ser Arg Asp
 1890 1895 1900

Asp Pro Ser Ala Pro Cys Val Ser Cys Pro Cys Pro Leu Ser Val Pro
 1905 1910 1915 1920

Ser Asn Asn Phe Ala Glu Gly Cys Val Leu Arg Gly Gly Arg Thr Gln
 1925 1930 1935

Cys Leu Cys Lys Pro Gly Tyr Ala Gly Ala Ser Cys Glu Arg Cys Ala
 1940 1945 1950

Pro Gly Phe Phe Gly Asn Pro Leu Val Leu Gly Ser Ser Cys Gln Pro
 1955 1960 1965

Cys Asp Cys Ser Gly Asn Gly Asp Pro Asn Leu Leu Phe Ser Asp Cys
 1970 1975 1980

Asp Pro Leu Thr Gly Ala Cys Arg Gly Cys Leu Arg His Thr Thr Gly
 1985 1990 1995 2000

Pro Arg Cys Glu Ile Cys Ala Pro Gly Phe Tyr Gly Asn Ala Leu Leu
 2005 2010 2015

Pro Gly Asn Cys Thr Arg Cys Asp Cys Thr Pro Cys Gly Thr Glu Ala
 2020 2025 2030

Cys Asp Pro His Ser Gly His Cys Leu Cys Lys Ala Gly Val Thr Gly
 2035 2040 2045

Arg Arg Cys Asp Arg Cys Gln Glu Gly His Phe Gly Phe Asn Gly Cys
 2050 2055 2060

Gly Gly Cys Arg Pro Cys Ala Cys Gly Pro Ala Ala Glu Gly Ser Glu
 2065 2070 2075 2080

Cys His Pro Gln Ser Gly Gln Cys His Cys Arg Pro Gly Thr Met Gly
 2085 2090 2095

Pro Gln Cys Arg Glu Cys Ala Pro Gly Tyr Trp Gly Leu Pro Glu Gln
 2100 2105 2110

Gly Cys Arg Arg Cys Gln Cys Pro Gly Gly Arg Cys Asp Pro His Thr
 2115 2120 2125

Gly Arg Cys Asn Cys Pro Pro Gly Leu Ser Gly Glu Arg Cys Asp Thr
 2130 2135 2140
 Cys Ser Gln Gln His Gln Val Pro Val Pro Gly Gly Pro Val Gly His
 2145 2150 2155 2160
 Ser Ile His Cys Glu Val Cys Asp His Cys Val Val Leu Leu Leu Asp
 2165 2170 2175
 Asp Leu Glu Arg Ala Gly Ala Leu Leu Pro Ala Ile His Glu Gln Leu
 2180 2185 2190
 Arg Gly Ile Asn Ala Ser Ser Met Ala Trp Ala Arg Leu His Arg Leu
 2195 2200 2205
 Asn Ala Ser Ile Ala Asp Leu Gln Ser Gln Leu Arg Ser Pro Leu Gly
 2210 2215 2220
 Pro Arg His Glu Thr Ala Gln Gln Leu Glu Val Leu Glu Gln Gln Ser
 2225 2230 2235 2240
 Thr Ser Leu Gly Gln Asp Ala Arg Arg Leu Gly Gly Gln Ala Val Gly
 2245 2250 2255
 Thr Arg Asp Gln Ala Ser Gln Leu Leu Ala Gly Thr Glu Ala Thr Leu
 2260 2265 2270
 Gly His Ala Lys Thr Leu Leu Ala Ala Ile Arg Ala Val Asp Arg Thr
 2275 2280 2285
 Leu Ser Glu Leu Met Ser Gln Thr Gly His Leu Gly Leu Ala Asn Ala
 2290 2295 2300
 Ser Ala Pro Ser Gly Glu Gln Leu Leu Arg Thr Leu Ala Glu Val Glu
 2305 2310 2315 2320
 Arg Leu Leu Trp Glu Met Arg Ala Arg Asp Leu Gly Ala Pro Gln Ala
 2325 2330 2335
 Ala Ala Glu Ala Glu Leu Ala Ala Ala Gln Arg Leu Leu Ala Arg Val
 2340 2345 2350
 Gln Glu Gln Leu Ser Ser Leu Trp Glu Glu Asn Gln Ala Leu Ala Thr
 2355 2360 2365
 Gln Thr Arg Asp Arg Leu Ala Gln His Glu Ala Gly Leu Met Asp Leu
 2370 2375 2380
 Arg Glu Ala Leu Asn Arg Ala Val Asp Ala Thr Arg Glu Ala Gln Glu
 2385 2390 2395 2400
 Leu Asn Ser Arg Asn Gln Glu Arg Leu Glu Glu Ala Leu Gln Arg Lys
 2405 2410 2415
 Gln Glu Leu Ser Arg Asp Asn Ala Thr Leu Gln Ala Thr Leu His Ala
 2420 2425 2430
 Ala Arg Asp Thr Leu Ala Ser Val Phe Arg Leu Leu His Ser Leu Asp
 2435 2440 2445

Gln Ala Lys Glu Glu Leu Glu Arg Leu Ala Ala Ser Leu Asp Gly Ala
 2450 2455 2460
 Arg Thr Pro Leu Leu Gln Arg Met Gln Thr Phe Ser Pro Ala Gly Ser
 2465 2470 2475 2480
 Lys Leu Arg Leu Val Glu Ala Ala Glu Ala His Ala Gln Gln Leu Gly
 2485 2490 2495
 Gln Leu Ala Leu Asn Leu Ser Ser Ile Ile Leu Asp Val Asn Gln Asp
 2500 2505 2510
 Arg Leu Thr Gln Arg Ala Ile Glu Ala Ser Asn Ala Tyr Ser Arg Ile
 2515 2520 2525
 Leu Gln Ala Val Gln Ala Ala Glu Asp Ala Ala Gly Gln Ala Leu Gln
 2530 2535 2540
 Gln Ala Asp His Thr Trp Ala Thr Val Val Arg Gln Gly Leu Val Asp
 2545 2550 2555 2560
 Arg Ala Gln Gln Leu Leu Ala Asn Ser Thr Ala Leu Glu Glu Ala Met
 2565 2570 2575
 Leu Gln Glu Gln Gln Arg Leu Gly Leu Val Trp Ala Ala Leu Gln Gly
 2580 2585 2590
 Ala Arg Thr Gln Leu Arg Asp Val Arg Ala Lys Lys Asp Gln Leu Glu
 2595 2600 2605
 Ala His Ile Gln Ala Ala Gln Ala Met Leu Ala Met Asp Thr Asp Glu
 2610 2615 2620
 Thr Ser Lys Lys Ile Ala His Ala Lys Ala Val Ala Ala Glu Ala Gln
 2625 2630 2635 2640
 Asp Thr Ala Thr Arg Val Gln Ser Gln Leu Gln Ala Met Gln Glu Asn
 2645 2650 2655
 Val Glu Arg Trp Gln Gly Gln Tyr Glu Gly Leu Arg Gly Gln Asp Leu
 2660 2665 2670
 Gly Gln Ala Val Leu Asp Ala Gly His Ser Val Ser Thr Leu Glu Lys
 2675 2680 2685
 Thr Leu Pro Gln Leu Leu Ala Lys Leu Ser Ile Leu Glu Asn Arg Gly
 2690 2695 2700
 Val His Asn Ala Ser Leu Ala Leu Ser Ala Ser Ile Gly Arg Val Arg
 2705 2710 2715 2720
 Glu Leu Ile Ala Gln Ala Arg Gly Ala Ala Ser Lys Val Lys Val Pro
 2725 2730 2735
 Met Lys Phe Asn Gly Arg Ser
 2740